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"FRUIT WORLD OF AUSTRALASIA."

Representing the Deciduous, Citrus and Dried Fruits Industry of Australasia.

Published the First of each Month.

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EDITORIAL

Organising the Fruit Industry.

It is to be hoped that the labors of the National Advisory Fruit Council will result in such improvements in the industry as will justify its existence and the high hopes of its success.

Already growers are finding this Council to be unwieldy, as at each meeting the Council has before it a wide range of subjects dealing with different sections of the many-sided "fruit" industry. Delegates coming from a distant State, for instance, keen on discussing export conditions, have expressed regret that the time has been absorbed in dealing with canning fruits. They ask are we trying to put the roof on the structure before we have the foundations?

State Boards send items to the National Council, which are often referred back to the State Boards for further consideration. Then the State Boards complain that after passing and recording their resolutions, the matter often ends there, the growers being cold and unimpressed.

It would appear that the idea of a National Advisory Council is excellent, like a head is excellent if it has a pair of shoulders to sit on and a body to control. But a head without a body is usually somewhat dead.

Does not this suggest that the way to organise the fruit industry is to commence with (1) the unit (the grower), (2) the district group, (3) the State organisation.

Yet, again, and this is vital, that each section should individually organise on these lines. Here are some suggestions for sectional groups. (1) Apples and Pears. (2) Dried fruits. (3) Peaches and soft fruits. (4) Citrus fruits. (5) Berry fruits. (6) Other fruits.

These are well defined divisions which could be operated on commercial lines. Each section has its own particular needs. Already the dried fruit and citrus sections are working effectively on these lines.

The future of the industry is in the hands of the growers themselves, and the success of the industry collectively and individually depends on sound organisation and wise leadership.

Co-operation in Industry.

It is with regret that we have to record in our pages this issue the untimely death of another fruitgrowers' co-operative company. This time it is the Murrumbidgee Irrigation Areas Co-operative Co., at Leeton, N.S.W. The State Government, amongst others, is a heavy loser.

There are too many of these failures. What is wrong?

Yet side by side with these failures in Australia we are regularly publishing information relating to successful fruitgrowers co-operative concerns in California. Wherein lies the difference?

This subject is of the greatest commercial value to Australian fruitgrowers.

Readers are invited to study the carefully worded article in this issue, dealing with the successful organisation of the citrus growers in California. The basic idea of the growers there is to organise their industry, put up a standard pack, to market the fruit intelligently, utilising every available channel of distribution; to advertise to increase the consumption of fruit. And the latest development is a special department to assist the retailer.

In other words, as was so aptly stated in the report of Mr. J. S. Vagg, of Griffith, N.S.W., after his return from U.S.A., to "organise and merchandise a standardised product on a stabilised market."

This "co-operation" means what it says, viz., co-operation amongst producers, distributors and the general public. Nothing else will succeed. The growers have the future of the industry in their own hands.

Persistent Publicity Penetrates.

The fruit industry has a unique opportunity to avail itself of the repeated offers of the public press to assist in increasing the consumption of fruit. We have several times drawn attention to this offer, yet it remains unaccepted. Why is this? In terms of hard cash, it represents many thousands of pounds sterling. It is a pity this amount of capitalised energy should go a-begging.

ADELAIDE ROYAL SHOW.

The Annual Show of the South Australian Agricultural and Horticultural Society was held in Adelaide last month. The attendance was among the best recorded. Citrus fruits and Apples comprised the principal exhibits in the fruit division, the judges declared that the show of Apples was the finest seen at any show for this time of the year, and reflected great credit upon the exhibitors. Owing to the high standard of fruit, the judges were compelled to award the Jonah Hobbs' Challenge trophy for best exhibit in collections of fruit to two growers, Messrs. H. Wicks and Walter Rehn. The former exhibited some wonderful Oranges of firstclass texture and quality, while W. Rehn's Apples, with their waxy bloom, were perfect in everey respect.

Other successful exhibitors were Messrs. Hann Bros., W. R. M. Sayers, F. H. Hobbs, S. Jenkins, A. Packer, G. S. Jenkins, C. Rowell, W. H. Ind, C. F. Newman and Son ,S. E. Franklin. The display of vegetables and cut flowers were magnificent, the horses, sheep, poultry and other live stock, together with the ring events, made it a very successful Show.

The Editor's Mail Bag

Boquets and Dead Cats.

There is a peculiar piquancy in opening up the letters. One never knows what to expect. It reminds us of the story of the Scotchman and the Irishman who were being chased in an open field by a mad bull. The men ran, but there seemed no escape. "Can ye remimber a prayer, Sandy?" asked Pat. "No, not yet," replied Sandy. Still they ran, but the bull was now close upon them. Then Sandy remembered his prayer, and just managed to gasp, "Shut your eyes, Pat. For what we are about to receive, Lord, make us truly thankful." "Amen," echoed Pat from a considerable height.

So we are "truly thankful" for letters received. Here's one, a fierce chap in Queensland:—

MR. SNORKINS IN TROUBLE.

To the Editor "Fruit World."

Sir,—My compliments to your cocky jester, Mr. A. Snorkins. I have read his opinions of Queensland marketing scheme, and the Council of Agriculture, both of which he "damns with faint praise," admitting, of course, that he knows very little of either. The genius Snorkins vies with our worst pests to make our troubles more so. I would that your spray manufacturers give us a specific to eradicate such as he, otherwise the day is at hand when most orchardists' trousers will be in an even greater state of disrepair than those of your village idiot, A.S.—Yours, etc.,

Q'LAND ORCHARDIST.

Now here's what a grower in New South Wales has to say:—

"Almost Bolshevik."

"I have read the programme of the Queensland fruitgrowers' proposed organisation. I think it is almost 'Bolshevik,' and the 'Committee of Direction' suggests something of the inquisition.

"By the time all the managers, directors, etc., are paid out of the fruit, it looks as though there will be precious little left for the grower. Some growers reckon they are badly treated when having only the agent to deal with, but it looks as if the Queensland growers will have half-a-dozen as well, all of whom are to make a living out of him."

. . . .

Wiping the perspiration from our streaming editorial brow, we open the next letter, this time from Shepparton, Vic., in the course of which the writer says:—

"I consider the 'Fruit World' is invaluable to fruitgrowers."

Heaven bless you, sir, for those gracious words.

But what's this? Here's another grower—a Victorian—on the warpath.

"I would like to see more articles instead of dry reports of fruitgrowers' meetings."

This reproof is in love. Perhaps our friend was referring especially to the report of the recent Queensland meeting, to which we devoted several pages. Oh, sir, don't say that was dry, or you'll have Mr. Snorkins replying. And if dry, it naturally brings the question, "Could you stop one?"—though this usually has a different meaning from the remark which Firpo is alleged to have made to Jack Dempsey as the latter crawled back into the ring during a recent little argument in Amurrica.

This has given an idea to the Fighting Editor, who is determined the next time he hears of a fruitgrowers' meeting (especially if they are going to discuss orchard tax, superintendent of horticulture, closing the Melbourne fruit shops, direct distribution of fruit, or councils of action) to have the Riot Act read.

That'll stop their arguments, and our office boy, Bill Waggleweapon, will be able to go swimming instead of writing reports. He says that won't be so dry, anyhow.

However, what will the next letter be about?

NEWS IN BRIEF.

The Tasmanian State Fruit Advisory Board has decided on a levy of ½d. per case on exported fruit for organisation and advertising, and is seeking to enact the necessary legislation.

Owing to the failure of many grafts to "take," some special experiments are being inaugurated in Tasmania.

Our correspondent on the Murrumbidgee Irrigation Area, N.S.W., reports that as Melbourne Fruit Merchants could not obtain supplies of citrus from the Victorian Citrus Association, large purchases were made of the crops at Leeton and Griffith, N.S.W.

Keen interest has been aroused by the discovery by a scientist at the Adelaide University of a dipping solution for citrus fruits. Lemons were sent to London and back again without refrigeration in perfect condition.

The Victorian Government has agreed to renew the grant of £150 to the Metropolitan Fruitgrowers' Association (provided the Association raises a similar sum) to extend the open-air marketing system.

NEW ZEALAND.

Government Guarantees 16/6 per Case on 250,000 Cases.

New Legislation to Control the Fruit Industry.

Export Guarantee.—The New Zealand Government, in response to the request from fruitgrowers' deputation, has agreed to guarantee growers 16/6 per case (in order to give growers a penny per lb. net) to the extent of 250,000 cases.

The request of the deputation that a similar guarantee be given as regards the 1925 season has been deferred for further consideration.

Control Legislation.—In accordance with instructions from the recent Conference of New Zealand Fruitgrowers, a bill is being drafted to give a measure of oversight and control to a committee appointed by the growers. It is stated that the Prime Minister and the Minister of Agriculture, also a majority of members of Parliament are favorable to the bill, and will assist in its passage.

Colonel Gray, one of the representatives of the fruitgrowers, stated in a recent interview that it was impossible to give details until he knew the text of the bill to be submitted to Parliament, but, broadly speaking any province was entitled to come in under its provisions in regard to export, local marketing, or both. Under the provisions of the proposed Bill, it would be possible for the Nelson district to introduce compulsory standardisation.

A NEW SEEDLING ORANGE.

A SEEDLING Orange has been brought under the notice of the Pomological Committee of Australia. The original seedling is a tree fifteen years old, raised from a seed of Paramatta Seedling. It is growing in the orchard of Mr. R. D. Gearing, of Echuca, Victoria. The fruit ripens early in September, and is therefore late: the tree is bushy in habit and a strong grower.

The fruit is oval in shape, and somewhat reminiscent of the Joppa type, although the colour is deeper and the skin somewhat rougher. The skin peels easily from the fruit. It is noticeable that there are very few seeds in the fruits, which are rather large in size; many of the fruits are devoid of seeds. The fruit is juicy and the flavour good. One member of the Pomological Committee has expressed the opinion that the fruit is quite equal to that of the Washington Navel. The fruit, which is to be called Cape Horn, after the name of the raiser's vineyard, appears to have a future before it.

Spring Work for the Banana Grower

Practical Experiences in New South Wales and Queensland

(*By W. J. Allen and R. G. Bartlett, N.S.W. Department of Agriculture.*)

Selection of Suckers for Planting.

ONE OF THE MOST IMPORTANT points in the growing of Bananas is the selection and proper treatment of suckers, for planting. Unfortunately it is a factor to which very little attention is given by the majority of growers. One hears a good deal about the selection of seed maize and the grading of seed wheat, and of the increased returns and general improvement that arise therefrom, but one does not meet many Banana growers who recognise the close relation that careful selection of suckers bears to the future life of a plantation, not alone in regard to the yield of fruit, but particularly as to freedom from disease, write Messrs. W. J. Allen and R. G. Bartlett in "N.S.W. Journal of Agriculture."

Too often we see suckers taken from abandoned plantations for the simple but very unsatisfactory reason that they are cheap and easy to dig out. The grower knows nothing of the history of such a plantation, nor why it has been unprofitable, and has had to be abandoned. A case in point occurred quite recently. A plantation had been abandoned nominally because it had become infected with bunchy top, but when examined it was found that the suckers were positively riddled by beetle borer. An unsuspecting grower might conceivably have decided to select suckers from such a plantation by taking plants that bore no signs of bunchy top, but he would undoubtedly have introduced beetle borer into his new plantation. The intending grower should know not only that his suckers are free from disease and pests, but that they come from clean plantations.

It can be readily understood that in the early days of the industry, when the supply of available suckers was scanty, growers had to take what they could get, and the unsound practice arose of planting anything and everything in the shape of a sucker —even to splitting up old butts into four and sometimes six "slips." In many instances—it is hardly too much to say, in nearly every one seen —bunchy top has developed on plants raised from butts split into small parts, perhaps because of the extent of cut surface exposed by this method to the action of fungi and bacteria in the soil. Growers will do well to take warning and pay careful attention to this important matter of selecting the right class of sucker.

Selection for Vigour.

Most growers know that the most vigorous sucker is the one with a good bulb, and with small narrow leaves. This type of sucker is always a good grower, and always produces a good bunch of fruit. The size of the sucker is of less importance than the size of the bulb. The bulb is simply food stored up; hence the larger the bulb the larger the quantity of food stored up to tide the plant over the shock of removal, and to enable it to put forth roots in its new abode.

Suckers with poor bulbs and trunks of uniform girth should be rejected, and those with good bulbs and tapering trunks, or as some describe them "bottle-shaped," should be preferred. In this way vigorous plants will be obtained that will make the best of the soil and weather conditions.

One of the most vigorous plants of all, of course, is produced from the old butt from which all but one or two eyes have been pruned away. This gives the young plant plenty of food, and enables it to overtake larger suckers and to produce a larger and better bunch, and at a time when prices are good. Let it be repeated, however—do not split your butts into smaller pieces, making four or six sets or slips, for how then can you get vigour, and how can the plant resist the intrusion of disease with such an extensive cut surface?

. . . . . .

SELECTION FOR DISEASE RESISTANCE.

IF THE SUGGESTIONS made above are adopted, the grower will plant few diseased bulbs. There is still a chance, however, that suckers will be planted that are not free from root disease, for once introduced into a plantation it can never be eradicated. The grower requires to be extremely careful, therefore, that he does not permit it to come into new areas with his plants. Fortunately, its presence in a sucker can be readily discerned by examining the butt.

If the butt is cut across with a sharp knife reddish pin spots will be noticed—an unfailing indication of the presence of root disease. Sometimes, if the disease is very marked, it will be found that the rot of the roots has extended fully half an inch into the bulb itself. If, therefore, these symptoms are found in any of the suckers in a field, all suckers in that field should be rejected for the purpose of planting a new area.

Again, beetle borer may be present in a plantation. All suckers intended for planting should be examined to discover whether they show any sign of a hole—in fact, thin slices may be removed from the outside of the bulbs, and if holes are found with material resembling sawdust in them it may reasonably be supposed that the borer is present, and that no plants from the plantation should be used in setting out a new area; at any rate, an officer of the Department should be asked to make an examination.

Nematodes are the curse of plantations not on basaltic soils. They manifest themselves by gall-like swellings or nodules on the roots, and by red discolorations that are seen when the roots are split along the length. If these pests are present all suckers should be carefully freed from soil, and all roots absolutely pruned off to the bulb. The bulbs should then be soaked for at least two hours in a solution of corrosive sublimate. The strength of the solution should be 1 to 1,000—or 1 ounce corrosive sublimate to 6¼ gallons of water—and it should be contained in a wooden vessel. The mixture is cheap (the corrosive sublimate is about 1s. per ounce) and it may be used over and over again so long as there is sufficient fluid left to cover the bulbs properly.

As corrosive sublimate is a deadly poison, it must be handled with care, and troughs containing the solution must be covered. No harm is done to the suckers if they remain much longer than the two hours in the solution. Indeed, a grower may dig the holes for a batch of suckers while soaking, and then remove and plant them while the next batch is soaking in its turn, even so long as overnight for next morning's planting.

Planting Suckers Too Close.

One of the common errors of Banana growers in New South Wales is to plant too close. In Queensland the distance apart that is generally accepted is 12 feet by 12 feet—a method that allows of a citrus orchard being established on the same ground at the same time, with the trees 24 feet by 24 feet apart. Under the conditions obtaining in New South Wales, however, the districts in which Bananas are grown have not so far proved suitable for citrus, and this has permitted the space to be reduced appreciably. The system of leasehold tenure has acted in the same direction, it being necessary for the tenant to get as much as possible out of his ground during the short currency of his lease. Moreover,

close planting means less weeding and consequently less expense in cultivation, for the leaves cover the ground, shutting out the light and smothering the weeds.

The grower must take into account, on the other hand, the fact that close planting tends to make the plant grow abnormally tall and to become brittle, with the result that the bunches drop off before they have matured. Further, too dense a shade during humid spring weather favours the development of fungus troubles of different kinds, such, for instance, as "cigar-end," a diseased condition that is more prevalent here than in Queensland.

On the whole, 11 feet by 11 feet may be considered a happy medium in New South Wales; 10 feet by 12 feet gives greater convenience, perhaps, in cultivation where horse implements can be used.

DEPTH OF PLANTING.

MANY MISTAKES HAVE BEEN made in this important matter. The grower should recognise that the habit of the Banana is to send out roots at a uniform depth of 3 inches below the soil level. This is a fact, the importance of which has to be recognised. Whether the bulb is large or small, whether it has been planted deep or shallow, its natural tendency is to throw out its roots at that depth. Its significance lies just here—the grower should plant his suckers with

only 3 inches of soil

above the top of the bulb. In other words, a sucker with a 3-inch bulb will be planted 6 inches deep, and one with a 12-inch bulb will be planted 15 inches deep. Where obedience to this method means that the hole cannot be filled in it should be "dished off," so that it may be filled in gradually by cultivation, rain, etc., after the roots have developed at the right point.

It must not be concluded from that that shallow holes should be dug for small bulbs. In every case the hole should be at least 15 inches deep, and the bottom should in addition be broken up with a pick or mattock. The bulb is then set on this loose bottom, a few inches of soil being thrown in in the case of small bulbs; the soil is finally filled in over the bulb so as to give a 3-inch covering referred to.

The importance of this will be seen if we point out the effect of planting too deep. It has been observed often, that if a sucker is set too deep, instead of rooting from the bulb (the natural place) it sends out roots from the stem by splitting the trunk at 3 inches below the surface, and forming a sort of false bulb at that level, while a construction develops below, which makes it impossible for the plant to utilise the plant food stored in the proper bulb.

This, of course, means that the sucker is at a standstill until such time as the false bulb and roots have developed, which involves serious loss of time during the growing season, and results in a plant distinctly weaker than it might have been.

We cannot too strongly stress the care that should be exercised in planting the top of the bulb at no greater depth than 3 inches below the soil level. Sometimes it is even necessary after a severe rainstorm to go round and remove some of the soil that has been washed in, covering the bulb to a greater depth than the correct one.

Mildura (Vic.) Vineyards Protection Board

Regulations Governing Imports into Mildura and Districts.

The Mildura Vineyards Protection Board recently issued the following notice concerning quarantine regulations in connection with nursery stock fruit trees, plants, fruits, intended to be introduced into the Town and Shire of Mildura, which includes all railway stations between Hattah and Merbein, also river banks, punts, crossings. by steamer and conveyance at all points between Euston and the South Australian border, which can only be introduced subject to the following conditions being strictly observed.

1. That any person, grower or agent desiring to introduce from another district, shall first obtain a Declaration Form to include with Order to Nurseryman or other person being the grower of plants, as without this form consignments of plants, trees, etc., are not permitted to enter the district. For the convenience of growers these are obtainable free, on application to any Packing Shed Office in the district, or from the Inspector at Mildura and Red Cliffs Office. Consignees must notify the Inspector immediately, in the event of any parcel or consignment arriving contrary to this regulation.

2. That such consignment, package or parcel sent by rail, steamer, or post or other means of conveyance or among personal luggage, contains no grape vines (rooted or cuttings), as vines are absolutely prohibited from being brought into the Town and Shire of Mildura.

The Act provides for a penalty of £100—and six months imprisonment for vines introduced from an infected area.

3. That plants contained in packages about to be introduced were grown at a greater distance than 50 yards from vines or roots of vines.

4. That no Phylloxera exists or has been known to exist in the nursery or garden in which such plants were grown.

5. And that the whole of such plants are perfectly free from that pest known as Phylloxera Vastatrix.

6. That such nursery stock, plants and fruit-trees are clean and free from San Jose scale and other injurious insects and garden pests, and on arrival are subjected to inspection and liable to be fumigated or confiscated if found to be infected.

Restrictions on Imported or Other Fruits.

Bananas, Pineapples, Coconuts, Citrus Fruits, Cucumbers, Tomatoes, and other fruits liable to be infected with the larvae of the Queensland and Mediterranean fruit-fly are absolutely prohibited.

Persons travelling to Mildura by rail, motor or steamer, are liable to have their luggage examined and be prosecuted if same is found to contain prohibited fruits.

Second-hand fruit cases, including Banana and Pineapple cases, are absolutely prohibited from being brought into the Town and Shire of Mildura. Persons anticipating consignments of Apples, etc., are reminded to notify the senders that all fruit cases require to be new; this will prevent considerable inconvenience and annoyance on arrival to all concerned.

Special Notice to Carriers and Others.

Second-hand fruit cases containing Fresh Fruit, Vegetables, Eggs, Poultry, or other goods, are prohibited from being brought into the Shire and Town by regulations, and are not to be taken from Railway Station and delivered to consignees on arrival.

Regarding Nursery stock, fruit-trees and plants, similar conditions apply to Curlwaa and Gol Gol areas in N.S.W.

For further particulars apply to the Inspector or Quarantine Officer in Charge, Quarantine Ground, Mildura Railway Station.

"You don't say so?" "It's a fact. Would hardly believe it, but for the official figures published in the Fruit World Annual. First-rate production. Worth £2/2/- any day. Could not do without it." Price, 3/- (post free in Australia and New Zealand). Order from The Fruit World, 9 Queen-street, Melbourne, Vic.

N. Tasmanian Agents for Blue Bell Arsenate of Lead.—In addition to the agents representing "Blyth's" Blue Bell spray mixtures, as advertised on page iii. of this issue, Messrs. Bender & Co., 100 Elizabeth-street, Launceston, have been appointed sole agents for Northern Tasmania.

Powdery Mildew Reduces the Apple Crop.

New Zealand Scientists Describe Its Cause and Control.

Winter Pruning: Spring and Summer Sprays.

By G. H. Cunningham, Biological Laboratory, Wellington, N.Z.

POWDERY MILDEW (Podosphaera Leucotricha), although very frequently neglected by the orchardist, is one of the most serious diseases with which he has to contend. It is prevalent throughout the fruitgrowing areas of New Zealand, and becomes especially troublesome during the late summer and the early autumn. It would appear that this disease originated in western North America, and from there it has spread to almost every country where Apples are grown, for it has been recorded from Europe, Asia, and Australasia.

In New Zealand powdery mildew is confined to the Apple, but in Japan it occurs on an additional host, **Pirus toringo**, and in North America has been recorded (though seldom) on the Pear. So far as the writer is aware no Apple varieties are immune, but certain varieties are more susceptible to attack than are others, Cox's Orange, Jonathan, Sturmer, Cleopatra, London Pippin, Gravenstein, and Northern Spy being usually severely infected.

Economic Importance.

This disease causes the leaves to become much smaller in size, crinkled, brittle, and darker in colour. Infected leaves fall prematurely, so that about midsummer severely infected trees appear partially defoliated. Shoots, if infected early in the season, become stunted and often so weakened as to die at their tips, often losing their foliage, when they appear quite bare. Fruit-buds are damaged to such an extent that the resultant blossoms seldom set fruit.

Fruits may be attacked while immature, with the result that at maturity they appear russeted and smaller than the normal At the stem end they frequently become scabbed and cracked. In short, the effects of mildew infection are:—

(1) The reduction of leafage and damage to the remaining foliage.

(2) Destruction of fruit-buds.

(3) Weakening and frequent killing of laterals, and

(4) Reduction of the marketable value of the fruit by russeting, cracking, and frequent deformation. Further, young nursery stock may be damaged to such an extent that woodgrowth is entirely prevented; consequently such stock becomes unsaleable.

Appearance and Effect on the Host.

Trees infected with powdery mildew present a very sickly appearance; they become partially defoliated, and carry about one-fourth of the leafage of a normal tree. The shoots are often bare at their tips (Fig. 2), and are partly covered with the glistening white masses of the fungus. The fruit is smaller than the normal, and usually disfigured.

Powdery mildew attacks leaves, shoots, blossom-buds, and fruits. On the leaves it first becomes noticeable in the form of small, irregular, white or greyish cobwebby patches. These make their appearance first on the under-surface of the leaf, and gradually become entirely covered, when the leaf appears as if covered with flour.

Leaf-infection first occurs as soon as the leaves emerge from the bud, and the fungus spreads progressively from these to subsequently formed leaves. Infected leaves become narrower and rather longer than the normal. At first they appear somewhat blistered, then the edges gradually curl inwards until they appear markedly distorted. (Fig. 1.) Later they become brittle, and have a scorched appearance. Finally, they change to a bronze colour, and ultimately fall.

Laterals are infected shortly after the leaves have emerged from the buds, and immediately after they have begun to increase in length. Infection occurs from the leaves, the hyphae growing down the leaf-stalk to the young shoots. As a result of infection, growth is somewhat checked, consequently the buds are more closely set together.

When infection is severe the tips of the shoots are killed, and the following season several small shoots spring from below the killed area, the resultant shoots presenting a "bushy" appearance. The fungus continues to develop on the shoots until they become covered with a white felt-like mass, more abundant near the tip, which consists of the mycelium or vegetative portion of the fungus. (Fig. 2.)

Infected blossom-buds are somewhat smaller than the normal, and are conspicuous by reason of their covering of white mycelium. When the buds expand and the blossoms appear, the calices and stalks are seen to be somewhat deformed and altered in colour. Infected blossoms rarely set fruit, and are invariably later in appearing than the normal blossoms.

The fruits are infected shortly after blossoming, and at this stage may be seen to be partially covered by the fungus, and the delicate epidermis (outer skin) becomes damaged, so that later, when the fruits approach maturity, the epidermis is seen to be decidedly russeted, the markings appearing either as a delicate brown or yellowish tracery over the surface, or as scabbed and deformed areas on one side, but more frequently on the stalk end of the fruit.

This may be followed later by the appearance of concentric cracks which usually extend some distance into the flesh and afford opportunity for the entry of spores of soft-rot fungi; consequently fruit from trees infected with mildew rarely keeps well for any time. The writer has not observed the hyphae of the fungus on other than very small fruits.

The fruits of all varieties do not appear to be attacked, as russeting has not been observed on fruits of Cleopatra, although the leaves and shoots of this variety suffer severely.

Considerations Regarding Control.

As has just been shown, powdery mildew is perpetuated by the persistent mycelium (Fig. 2); therefore where systematic attempts are being made at control attention should be given to the removal of this source of infection. If all infected shoots and buds were removed, then the disease would be entirely eliminated and spraying unnecessary. Unfortunately, this cannot be accomplished in a commercial orchard, partly because the time required would be too great and the labour involved too costly, but principally because the disease is in part carried over in infected buds, which in many instances are not apparent from a casual inspection. Furthermore, infection would still be liable to occur from wind-borne spores from neglected orchards in the vicinity. Nevertheless, cutting out would minimize infection, especially spring infection, to such an extent that control by spraying would be rendered comparatively simple

The crop would not be in any way lessened by the removal of infected shoots and fruit-buds, for, as has been shown earlier, infected buds are incapable of setting fruit. Therefore systematic control of powdery mildew must commence with the cutting-out of visibly infected material. This may be readily accomplished during the **winter pruning**, especially in New Zealand, where the system of pruning is such that practically every shoot is dealt with. If the disease were much in evidence during the late summer. a further cutting-out could be undertaken.

From time to time numerous sprays have been recommended for mildew-control. Bordeaux, lime-sulphur, "iron-sulphide solution," atomic sulphur, and several variants of these have all been tried. Undoubtedly **atomic sulphur** has given the most satisfactory results. The iron sulphide solution has been favoured by numerous growers (this is a solution of lime-sulphur to which iron sulphate has been added), but consideration will show that this is merely a solution of atomic sulphur and iron sulphide, the latter compound possessing little if any value as a fungicide.

Control.

(J. A. Campbell, Director of the Horticulture Division, Wellington, N.Z.).

As powdery mildew is carried over the winter months by the patches of fungus which remain on the shoots and in the bud-scales, it is necessary that as many of these as are seen be removed during the winter pruning. This should be followed by spray applications according to the table at top of next column.

Where a regular spray formula for black-spot control is being followed it will be found that mildew is held in check somewhat, but not entirely, as lime-sulphur is not altogether satisfactory as a controllant of mildew owing to the very weak strength (1-120) at which it is applied. A dual spray—lime-sulphur 1-120 plus atomic sulphur, 10-100—is therefore recommended in place of lime-sulphur alone. The second black-spot spray would be lime-sulphur, 1-30, in preference to Bordeaux, 3-4-50, as the latter is not as efficient a mildew controllant as the former.

The first two sprays in the schedule prevent leaf-infection from mycelium overwintering in the buds, No. 2 especially preventing russeting of fruits. The third and fourth sprays prevent infection from outside sources. It should be realised, however, that spraying is effective only where cutting-out has been practised in the winter. No. 3 spray should be followed by cutting-out, especially where the disease is prevalent.—"N.Z. Journal of Agriculture."

No.	Time of Application.	Spray.
1	Between open-cluster and pink stage	3-4-50 Bordeaux, or preferably 1-30 lime-sulphur.
2	Calyx (petal-fall, or when the majority of the petals have fallen)	1-100 to 1-120 lime-sulphur, or preferably 10-100 atomic sulphur.
3	Beginning of January	10-100 atomic sulphur, or 1-120 lime-sulphur.
4	Middle of February	10-100 atomic sulphur, or 1-100 lime-sulphur

WESTRALIAN APPLES APPRECIATED IN LONDON.

Wire Strapping Advocated.

A resident of Perth (W.A.), who is on a visit to the United Kingdom, writes:—"At Covent Garden there was spirited bidding when the dark wood (jarrah) cases were put up. Western Australian Apples for quality, grading, packing, and general uniformity, easily came first. The cases, however, bulged, and auctioneers pointed out that these should be wire strapped in the same way as the New Zealand cases are."

(Photo by G. H. Cunningham)

Fig. 1. Tip of a Sturmer Apple Lateral attacked by the Powdery Mildew Fungus.—Half natural size.
Further growth is prevented, and the subsequently formed leaves remain small and strongly curled.

Fig. 2. Infected Apple Lateral from which the Mature Leaves have Fallen. Slightly reduced.
Note the stunted leaves, and especially the white mycelial mass covering the upper portion.

Fig. 3. Dunn's Favourite Apple Russeted as the result of Early Infection. Natural size.
Although not noticeable, the near side is much deformed.

The Fruit Industry in New Zealand

A COMPREHENSIVE REVIEW

Interesting Statistics and Information

(Reprinted from the "Fruit World Annual")

DURING THE PAST DECADE fruitgrowing has definitely taken its place amongst the great primary industries of the Dominion, and now adds a substantial amount to the list of exports.

The plentiful rainfall in the spring and autumn, the cold but sunny winters, and the alluvial soils of Nelson, Hawkes Bay, Canterbury and Otago are producing an export apple second to none for quality, flavour and colour, whilst the subtropical climate of the North is eminently suitable for stone and citrus fruits. Generally speaking, pip and stone fruits flourish throughout the Dominion, with the exception of the West Coast and extreme South of the South Island.

Soil, climatic and geographical conditions have centralised the commercial orchards in various districts, the total area of fruit under cultivation in the Dominion in 1922 being 31,121 acres distributed in provinces as follows:—

NORTH ISLAND.		
North Auckland	6,329	acres
Auckland	1,797	,,
Hawkes Bay	2,797	,,
Waiarapa	1,188	,,
SOUTH ISLAND.		
Nelson	9,905	,,
Otago	4,877	,,
Canterbury	2,881	,,
Other Provinces		

Of these areas, at least 75 per cent. is under apples and pears and 60 per cent. of the total have been planted during the past twelve years.

Although it is on record that a trial shipment of apples was sent to London as early as 1892, it was not until 1911 that any serious attempt was made to enter the export field owing to the fact that the existing crops were not then sufficient to supply the local market.

The first market to be developed was the South American, to which fruit was shipped as deck cargo at a low freight, the results being highly gratifying to the grower in spite of a good market then existing in the cities of the Dominion.

About the same time

cool-storage for fruit

was first established, and this also showed very good returns to the pioneers. The result of these successful ventures led to a big increase in the plantations of apples and a mild boom in "apple lands" was created in Nelson, and, in a minor degree, in Otago, Canterbury and elsewhere.

In most cases, the land thus planted was quite suitable for apples, but being of poor quality soils, cannot compare with the older orchards which were mostly on much better country. The results seen after twelve years on some of the estates are by no means up to the original optimistic estimates originally formed and generously advertised, but nevertheless, a very fine export fruit is being produced and the settlers principal difficulty is that of quantity rather than quality.

The Province of Nelson from the early days of settlement was always the premier fruitgrowing district, and the mild winters and sunny days render it eminently suitable. It was also the originator of the boom in plantation of apples for export, and Nelson apple lands were boomed throughout the Dominion with liberal advertising schemes.

The land chosen was the Moutere Hills, which are of a peculiar geological formation, and which was hitherto considered as unfit for any agricultural or pastoral settlement being covered with manuka scrub. To-day it is possible to drive through 20 miles of continuous orchards, all planted with the export apples.

Some of the land planted, in the light of present experience, is unsuitable, but the greater part is producing a fine export apple, very well coloured; though the crops are much lighter than was originally anticipated.

In 1915 export to South America ceased owing to war conditions, and in the last year of export (1914) about 45,990 cases had been shipped to this market. In 1916 some of the earlier planted new orchards were coming into bearing, and bold efforts were made to form co-operative organisations to exploit the local markets and to increase home consumption to absorb that portion of the crop that would otherwise have been exported but for the war.

To this end two companies were formed which covered the whole district, both being capitalised at about £15,000. Together they erected about ten packing sheds, two evaporators and a cool store, and although both companies met with early disaster, these facilities remain and are being used under various systems.

The present organisations in Nelson are in the form of packing associations whose principal object is the community packing of export fruit. They are affiliated with the Nelson District Fruitgrowers' Council and to the N.Z. Fruitgrowers' Federation.

Nelson is also the centre of the **raspberry** growing area of the Dominion and all the larger jam factories of the Dominion maintain pulping stations for this line in the district, and these, together with the local factory, absorb nearly the whole of the crop, little being placed on the fresh fruit market.

North Auckland, the second largest area, is a much more scattered district than Nelson, and most of the total area is not yet in bearing.

are showing good results and there is every indication of this district being the main supplier of citrus fruits to the Dominion.

The Lemon growers have organised themselves well and are turning out a very good line of lemons, properly packed, wrapped and cured from their central packing houses; and by loyalty to their organisation, have been able to control and stabilise the price thereof to a large degree. The Doherty apple does well in this locality, and large quantities of these as well as peaches, nectarines, strawberries, etc., are sold in Auckland city.

Central Otago ranks third in area, and, like Nelson, is an old fruitgrowing area much increased by recent plantings. Irrigation is practised, and in most cases is absolutely necessary, but ample water is available from the rivers which are fed by snow clad Southern Alps. Central Otago is noted for its stone fruits, particularly apricots. The summer conditions are not unlike those of Northern Victoria, and it seems destined to occupy the same position in the Dominion as that district does to Victoria, and will probably become the largest producer of fruits for canning purposes. Apple exporting has also been engaged in during the past two seasons. There is no co-operative selling organisation in this province, most of the crop being disposed of in Dunedin as fresh fruit or to the Dunedin jam factories.

The Provinces of Auckland and Hawkes Bay are very well situated for the distribution of fruit throughout the North Island on account of their excellent rail facilities. Auckland has had a severe set back in pip fruit growing on account of the outbreak of fireblight in 1921, but owing to the vigorous preventive methods of the Horticultural Department and the growers themselves, this deadly disease appears to have been checked.

These provinces grow peaches and other stone fruits well, and they are the principal suppliers to all the North Island towns. There are small co-operative distributing organisations in both districts, one of which has made a success of selling

10lb. cartons of apples

through a firm of multiple shop grocers. Hawkes Bay is also an exporter of apples and there are cool stores at Hastings.

Canterbury orchards are mostly young, and are situated between Christchurch and Rangiora. The crop is mostly disposed of in Christchurch, where there is a growers' distributing company with a fine cool store, as well as two other private stores.

Of the remaining provinces, Waiarapa and Marlborough have a few commercial orchard settlements and are small exporters of apples.

All things considered, the industry has made fair progress in organisation, and whilst there is the usual diversity of opinion as to methods, there are not many out and out "individualists" amongst N.Z. growers.

(To be continued)

CAYUGA, A NEW PEAR FOR NEW YORK.

A Seedling of Seckel, Which It Resembles.

A high quality Pear, with more resistance to blight than any of the standard commercial sorts now grown in the State, has long been the aim of the Pear breeding work in progress at the New York Agricultural Experiment Station at Geneva. The station horticulturists announce that out of more than 2,000 seedlings tested by them only eight Seckel seedlings have given sufficient promise to merit further testing. One of these, named Cayuga by the station workers, is now being distributed by the New York State Fruit Testing Co-operative Association, Inc., for further trial.

"As grown on the station grounds, Cayuga seems to be about all that could be desired in tree characters," says the station horticulturist. "The young trees are vigorous, healthy, and free from blight, although this does not necessarily mean that the new variety is blight proof. It will take years and plantings under many conditions to determine this point.

The fruit of Cayuga averages as large as that of Bartlett, although in shape it resembles Seckel and in colour Clairgeau. The quality of the new variety is better than that of any standard sort except Seckel. The flesh is firm and fine in texture, quite to the centre, and the flavour is the rich, delectable flavour of Seckel, although Cayuga is not quite so spicy as Seckel.

Of all fruits, it is most difficult to predict whether a new Pear will make its way in commercial culture, and about all that can be said of Cayuga is that it is well worth trying."

RED SPY NOW OFFERED APPLE GROWERS.

Offshoot from Northern Spy Attracts by Its Beauty of Fruit.

A typical Northern Spy Apple with a solid, bright red colour without stripes or splashes, grown on the grounds of the New York Agricultural Experiment Station at Geneva, is attracting much attention among fruitgrowers, and is declared by all those who have seen it to be the handsomest Spy ever seen. Scions of the Red Spy were received by the station horticulturists in 1910 from C. E. Green, of Victor, New York, but the trees did not fruit until 1920. The colour of the fruit is the only difference to be noted between this new sort and its parent.

"Whoever grows Northern Spy, either for profit or pleasure, should try Red Spy," says the station horticulturist. "It is true that the new variety has the serious fault of the parent, that of coming in bearing late, but there are many good characters to offset this fault. Thus, there are delectable quality and great beauty in the fruits, and in the tree hardiness, healthfulness, productiveness, and reliability in bearing to commend these two varieties. Nor should it be forgotten that the trees are long lived, nearly perfect orchard plants, and they bloom very late, thereby often escaping late spring frost, which ruin the crops of other varieties. Northern Spy is still one of the best Apples for New York, and Red Spy, with its beautiful fruits, will give new life to this old sort."—"American Nurseryman."

If you live for self alone, you're pretty likely to find the roadway of life leading through a lot of rocky places.

Fruitgrowing Under Irrigation

Ploughing : Crop Prospects : Diseases : Cultural Notes.

(By Our Special Correspondent)

The Benefits of Early Ploughing

THE WEATHER during the latter part of August and the early days of September turned in somewhat dry. The hay crops are showing signs of needing rain, and unless falls are received ere long the crops will be very light in the mid-Murray areas.

September is often dry in these areas, and growers should have been prepared for such a turn of events, but many have for various reasons delayed their plowing. The result is that in most cases this work has had to be abandoned until the first irrigation is received.

One sees green crops of Peas in full flower, and the ground hard and dry, quite unsuitable for ploughing. As ploughing must be delayed until water is received, and the green crops are drawing the moisture freely from the soil (as under the warm spring sun the evaporation from the leaves is very rapid), much of the value of the crops is lost owing to the loss of moisture from the soil. The plants are reaching maturity, the seeds are developing, and the stalks are becoming fibrey.

What is the result of late ploughing?

The main disadvantage, and a very serious one is the loss of valuable moisture from the soil. The soil warming up rapidly cause the trees and vines to shoot early, consequently they are more likely to be cut by a late frost, than where the bursting of the bud is delayed by early cultivation.

The rapidly growing shoots make big demands upon the roots for moisture, and unless the soil can supply their need, growth is stopped and fruit as well as leaves often fall. The fall of young fruit and leaves, of course, will be reflected in the lessened harvest returns.

Green cover crops turned under after the stems have hardened, and when the soil has become more or less dry, do not decay rapidly, with the consequent result that the surface soil remains more or less open during the summer months. Soil ploughed late usually turns up in lumps; these, under the influence of the sun, soon bake hard, and great difficulty is experienced in bringing the soil into good tilth.

Soil that is open and lumpy does not conserve the moisture; this lack of moisture will be reflected in the returns when the fruit is gathered.

As often advocated in these columns, it is unsafe to leave the ploughing of the vineyards and orchards till September, to gamble on that month being damp. All ploughing should be completed by the end of August, and the scarifiers and harrows kept hard at work until the soil is brought down to a fine tilth.

Cultivation is the best form of fertilising, as it aerates the soil; all plants require oxygen, the roots need this gas as well as the leaves. Helpful soil bacteria also need the air to carry out their duties in liberating dormant plant foods, so that they may be taken up by the roots.

* * *

IRRIGATION.

IN THE IRRIGATION areas all the pumps will have started operations during September, the amount of water required on the holdings will vary according to the way the owner has worked his land. In well tilled soils but little water will be required, while those plantations which still need to be ploughed will be heavily watered.

Where soil is damp at watering time little difference will be noticed in the sap flow, but where the soil is more or less dry the application of water to the soil will cause a rapid rush of sap.

Disorders are liable to follow a rapid rush of sap, where growth has been restricted through lack of moisture. The tissues have become somewhat hardened and cannot expand rapidly enough to meet the extra flow of sap, with the result that the tissues are ruptured and many shoots may perish.

In irrigating one should try and arrange the flow of the water in the furrows so as to thoroughly irrigate the

whole of the rows

in the minimum of time, in order to reduce as far as possible the overwatering of the headland trees. One does not advocate big streams, the size of the stream must be regulated by the nature and fall of the soil.

In heavy lands with a slight fall, big streams may pay, but in lands with steep falls medium streams will be found more profitable.

In light sandy lands, where the fall is fairly great, short runs will be found more advantageous than long ones. With long runs the soil at the channel ends of the rows become water logged, as only small streams can be used owing to the liability of the soil to wash.

The central trees are usually sufficiently watered, as the water rushing past does not soak the soil. With short irrigation runs smaller streams can be used, and the soil more evenly irrigated without the danger of the soil washing.

CROP PROSPECTS.

THE ESTIMATING or attempting to estimate the fruit crops at this period of the year is similar to "counting the chickens before they are hatched.' One likes to see a good flowering, feeling that at least there is some indication of a good crop.

The **Almonds** have flowered fairly well, and the crops showing should prove profitable ones.

The **Peaches** and **Nectarines** are in full bloom, and both trees are generally carrying masses of flowers, especially is this the case with the latter trees.

The **Apricot** trees are flowering irregularly as one would expect after the very heavy crops carried last season. One tree may have a good show of blossom, while the next tree has only a light covering of flowers.

Many of the **Prunes** and **Plums** are showing heavy blooms, but it is early yet for most of these trees to flower.

Some of the early **Pears** are a mass of blossom, and should only a small percentage of them set, a heavy crop should result.

The **Orange** trees are now tipped with the little white buds, and ere this is in print the trees will be clothed in sweet-scented blossom. Following on the light nature of the season just ending, given good flowering weather, one might reasonably expect a good setting of fruit.

The **vines** are all bursting, and the vineyards that have been bare for months are assuming a green tinge once again.

* * *

DISEASES.

THE DREADED "Downy Mildew" was absent from the vineyards last season in these areas, but one would be unwise to omit the first spraying on that account.

Should moist, muggy weather conditions prevail during the season, further applications of copper sprays will be necessary.

One hears so much of the value of the various copper mixtures for preventing the spread of this disease that one hesitates to advocate any given mixture or strength. The main object is to coat your vines with either Bordeaux or Burgundy mixture.

A neutral or acid spray is advocated for the first application, and alkaline for the subsequent sprayings.

South Australia

Fruit-Case Legislation.

A deputation of South Australian fruitgrowers recently waited upon the Minister for Agriculture (Hon. G. F. Jenkins) protesting against some of the provisions of the Standard Fruit-case Act, which it was announced would be fully enforced as from October 1st.

The deputation requested an extension of the notice, and that no prosecution be launched against users of secondhand cases, if such cases were under-sized.

Growers submitted that it was unfair to compel them to stamp their guarantee on any secondhand cases which might be received in exchange for full cases sent to market. There were 500,000 secondhand cases now in use, and the average life of a secondhand case was one year.

The Minister, in replying, stated the Standard Fruit-case Act was framed at the request of the growers, and was designed to protect the growers and the public. He would, however, waive the branding of secondhand cases as far as the grower was concerned. All new cases must be durably branded. With regard to shooks—people who put them together must brand them and take the responsibility.

AUSTRALIAN DRIED FRUITS.

Return of Mr. Hopkins, of Mildura. Advertising and Imperial Preference.

Mr. A. S. Hopkins, General Manager of the Mildura Co-operative Fruit Co. Ltd., recently returned from a business trip to England on the business of the Company.

In presenting his report at Mildura on 11th September, Mr. Hopkins dealt extensively with London selling arrangements, as well as the outports, such as Glasgow, Liverpool, Manchester and Bristol, and regarding advertising, stated that people in the provinces of England did not seem to know that Australia sent any dried fruits to England.

Regarding the A.D.F.A., Mr. Hopkins effectively defended the organisation against the charges which had been levelled against it. He advised the growers by all means to effect changes, if necessary, but to remember if they broke up the ship they were all out in the water.

In answer to a question regarding the present attitude of the British press towards preference, Mr. Hopkins said that the London "Times" and all the influential papers were now in favour of preference within the Empire. In order to preserve her manufacturing concerns, Great Britain must give Australia preference for dried fruits.

In conclusion, the speaker said during the time he was in England he never saw any Australian dried fruits that had grubs in it.

A unanimous vote of confidence in Mr. Hopkins was carried by the meeting.

30-year-old Trevatt Apricot tree on W. J. Rowe's Orchard, Mildura (Vic.). Yield, 19 tons 18 cwt. off 2 acres.

Queensland

QUEENSLAND FRUITGROWERS' ORGANISATION.

Compulsory Pools by Proclamation or Referendum.

Information to hand from Queensland is to the effect that the new marketing experiments are not altogether favored by growers.

Whilst the need is sympathetically realised that organisation amongst fruitgrowers is urgently needed, it is also hoped that when organising, the growers will do so on right lines.

Under the Queensland Primary Producers' Pools Act, now in force, the procedure in regard to the formation of a pool for any product is—

(1) Notice is first inserted in the newspapers in the districts in which the proposed pool will operate, notifying the intention of the Governor-in-Council to create the proposed pool.

(2) It is then within the power of 50 or more producers of the article proposed to be pooled to petition the Minister, asking that a referendum be held as to whether the pool in question shall be constituted.

(3) If this petition is received within 30 days a referendum is duly held, and if more than one quarter of those voting are hostile to the pool it will lapse.

(4) If no petition is received, or if three-quarters of those voting are favourable to the pool, same will be constituted.

Display of Canned Fruits.—At the recent Brisbane Exhibition, the State Cannery display was a very attractive exhibit of canned fruits, jams and jellies, tomato sauce and preserved Pineapple, all processed by the State Cannery. Special prominence was given to canned Pineapples, in view of the large quantity of Pines now being produced on the soldier settlements.

A NEW TRACTOR FITTING.

An improved draft and anti-rearing device for small tractors has been invented by a South Australian orchardist, as advertised elsewhere in this edition. This device, it is claimed, can be fitted to any make of small tractor in a few moments, and does not affect the working parts of the tractor in any way. It gives a very wide range for draft on either side of the tractor, and will allow the draft to be taken from a much higher point than would be possible or safe without this fitting.

New Method of Controlling Apple Scald

Remarkable Success of the Oiled Wrappers on Apples in Cold Store

Characteristics of Apple Scald.

IN THE SUCCESSFUL MARKETING of Apples the control of scald is a difficult and important problem.

It is a disease of stored Apples which makes its most rapid development just after the fruit is removed from storage. Apples that appear to be in perfect condition while at storage temperature may become brown and dead looking a few days later. The warming of the fruit is not the real cause of the trouble. but it allows the carrying out of the death processes that were initiated during storage, writes Messrs. Charles Brooks and D. F. Fisher in "American Fruitgrower."

Apple scald is confined largely to the green or uncolored part of the Apple, but it usually makes a more or less general attack upon the package or lot, rather than confining itself to individual Apples. In its mildest form scald consists merely in a superficial browning of the skin but in its later and more severe stages the Apple tissue may become brown and dead to a depth of an eighth of an inch or more.

The killing of the skin is not only a serious defect in itself, but it opens the way for infection by the various rots which soon complete the work of destruction. Most of the rot fungi are unable to penetrate the sound, unbroken skin of the Apple, but the dead, scalded skin offers no resistance to their attacks.

Remedies for Scald.

Apple scald is a relatively modern disease, and came into notice in the early nineties at the time of the development of the modern cold storage plants and the beginning of volume fruit business. The seriousness of the disease led to extensive experiments. In 1903 the late G. Harold Powell and S. H. Fulton made the first publication on the subject (Bulletin 48, Bureau Plant Industry) and summarised their results as follows:—"From a practical standpoint the scald may be prevented to the greatest extent by producing highly colored, well-developed fruit, by storing it as soon as it is picked in a temperature of 31 to 32 deg. F., by removing it from storage while it is still free from scald, and by holding it after removal in the coolest possible temperature."

This pioneer work was followed by numerous other investigations and publications by the Agriculture Experiment Stations and by the U.S. Department of Agriculture, all confirming these early results, emphasising the importance of well-matured fruit, and pointing out the dangers of delayed storage and delayed cooling.

As a result of these investigations and the educational and demonstration work that followed them, the losses from scald were greatly reduced and the storage and distribution phases of the Apple industry expanded to an extent that would have been otherwise impossible.

But in spite of all that was accomplished scald continued to be one of the greatest handicaps of the Apple industry and losses from the disease occurred even with the best orchard and cold storage management.

This fact led the Office of Fruit Disease Investigations of the Bureau of Plant Industry, U.S. Department of Agriculture, to undertake further investigations of the problem. The work was started in 1915 and experiments have now been carried out through **eight different storage seasons.**

A special effort was made to determine why Apples remained free from scald in the ordinary farmhouse cellar. Carefully conducted experiments proved that the disease could be entirely prevented by giving the Apple plenty of aeration and that this could be accomplished either by passing a

continuous air current

through the package or by giving the fruit an occasional but more extreme ventilation at various intervals during the first six or eight weeks of storage.

While scald control was thus readily accomplished experimentally with small lots of Apples, no method was found for furnishing ventilation under **commercial storage conditions** that was adequate to hold the disease completely in check.

Tests along this line, however, showed the importance of openness in the storage stack and the great value of ventilation in cases of delayed storage. They also showed that scald could be greatly reduced by the use of **open or ventilated packages** such as the ventilated barrel, the basket and especially the hamper.

* * *

OILED WRAPPERS.

THE FACT THAT AERATION tended to decrease scald led to a detailed study of the products that were thrown off by the Apple and removed by air currents. Withered Apples are resistant to scald, and it seemed possible that the benefits from aeration might be due to the dryness produced; but the results of investigations indicated that the air currents probably carried away something that was of greater importance in the development of scald than the moisture. It was found possible to entirely prevent scald with good aeration even in practically saturated air while the disease developed in dry air if it remained stagnant.

The respiration of Apples is slowed down in cold storage but not entirely stopped. They continue to absorb oxygen and throw off carbon dioxide.

Experiments were made to determine the effect of a reduced oxygen and increased carbon dioxide content of the air such as would result from lack of aeration. The results showed that variations in the oxygen content of the storage air had little or no effect upon the development of scald and that high percentages of carbon dioxide tended to prevent rather than produce the disease.

Absorbing the Odors.

Besides carbon dioxide and moisture the Apples throw off odorous substances. Other tests having failed to explain the benefits of aeration, experiments were started on these odorous materials.

It was found that the vapors of amyl acetate, amyl formate and acetaldehyde, all of which enter into the odorous constituents of the Apple, were definitely toxic to the skin of the Apple, and produced injuries to the green areas that were identical in appearance with scald.

These experiments were accompanied and followed by others looking for an absorbent of odorous substances that could be used with the Apples. Sawdust and charcoal materially reduced scald, but the best results were obtained with oils and fats applied to the Apple or to the wrappers.

Apples in oiled wrappers remained entirely free from scald.

Whether the oil has other favorable action in scald control than the absorption of odors has not been fully determined, but the practical success of the treatment has been most gratifying.

The power of oils and fats to absorb odors is well known. They have long been used for this purpose in connection with the manufacture of perfumes and the tendency of butter to take up odors is familiar to all.

Various oils, fats and waxes were tested as to their relative efficiency in scald control.

The waxes, such as paraffin and beeswax, decreased the disease, but were not near as efficient as the fats and oils. Practically all of the oils tested gave good control of scald, but the odorless, tasteless mineral oils, such as are used extensively by bakers and confectioners and otherwise in connection with food products, seemed most desirable for use in contact with the Apples.

Direct Application of Oil Unsatisfactory.

The experiments in the direct application of oils and waxes to the Apple have not been fully successful. Scald has usually been reduced by the treatment and in many cases practically eliminated but the appearance of the Apples has always been injured. Rubbing the oil on tended to remove the natural bloom of the Apple, and if enough oil was applied to control scald the Apples had an oily appearance upon removal from storage. With heavy applications of oil the ground color of the Apples remained abnormally green.

Oiled Wrappers Completely Control Scald.

These objectionable features have not been found with the oiled wrappers and they have always either completely controlled scald or reduced it to an extent that the commercial value of the fruit was not materially affected.

In a total of more than 80 different storage experiments there have been but two cases of failure and in both of these the time of appearance of the disease has been delayed and its severity greatly reduced. **The tests have covered a period of five years, have been made on more than a dozen different varieties and have been carried out in eight different eastern States and in two western ones.**

Examples of the results that have been obtained with oiled wrappers are given in the following table. The Apples in each instance were comparable in all respects, having been picked on the same date from the same trees, packed at the same time, immediately placed in cold storage under identical conditions except for the wrapper used, and removed and observed at the same time.

The western Apples were packed in boxes and the eastern ones in barrels. The results show the efficiency of the oiled wrapper under both box and barrel conditions, but it should be noted that it is not considered practicable to pack wrapped fruit in barrels.

Table Showing the Control of Scald by Oiled Wrappers.

The percentages are based on the average fruit surface scalded and the intensity of the scald.

Locality and variety.	Date of record.	Per cent. of scald. Oiled wrapper.	Unoiled wrapper.
Eastern Apples—			
Grimes:			
	Jan. 20, 1919.. ..	0	27
	Jan. 13, 1920.. ..	0	83
	Jan. 8, 1921.. ..	0	66
	Jan. 12, 1923.. ..	0.1	42
York Imp.:			
	Jan. 17, 1920.. ..	4	69
	Feb. 5, 1921.. ..	0	27
	Feb. 10, 1922.. ..	2.4	8
	Feb. 17, 1923.. ..	0.6	31
Wenatchee, Wash.			
Rome Beauty:			
	Apr. 30, 1920.. ..	0	41
	May 18, 1921.. ..	0	30
	Apr. 22, 1922.. ..	0	22
	May 3, 1923.. ..	0	30
Stayman Winesap:			
	Mar. 24, 1919.. ..	0	19
	May 23, 1921.. ..	0	16
	Mar. 18, 1922.. ..	0	16
	Mar. 19, 1923.. ..	0	15

The good results that have been obtained from the use of oiled wrappers give no excuse for carelessness in other phases of Apple operations. **They are not a cure-all in Apple storage.** They have little or no effect upon the rots or upon internal breakdown and do not prevent diseases and defects other than scald.

The date of the above table and the various statements in regard to scald control are based on wrappers carrying a minimum oil content of 15 per cent. of their dry weight (14 lb. basis). Wrappers carrying less than this amount of oil have usually reduced scald but have been less efficient than the more heavily oiled ones and are not recommended for commercial use.

* * *

The Industry Welcomes the Oiled Wrapper.

THE OILED WRAPPERS used in the earlier experiments were prepared by hand from the usual commercial wrappers. In the summer of 1919 a number of paper companies were asked to consider the preparation of oiled wrappers suitable for use on Apples. None of them undertook the work that year but the following season one company prepared a small run of high grade wrappers that were used experimentally and also by several growers.

In 1921 three or more paper companies were in the field with oiled wrappers. Some of these wrappers contained sufficient oil and good results were obtained in commercial shipments, but unfortunately a large proportion of the paper carried insufficient oil for scald control.

In many cases the oil content ran as low as 5 per cent. In spite of the indifferent success attending this first large-scale commercial test of oiled wraps, shippers had been

so thoroughly convinced

by the earlier experimental results that they were anxious to try the oiled wrappers again and in placing their 1922 orders for paper they specified a minimum oil content of 15 per cent.

The paper companies had gained experience and a number of additional companies had become interested, particularly those especially equipped for waxing and oiling paper.

Good oiled wrappers were supplied and the results in scald control have been most satisfactory.

While the oiled wrapper has been used in various sections in both the east and the west its large scale introduction has centred in the experiments and demonstrations of the junior author at Wenatchee, Wash.

The fruit used in the various experiments at Wenatchee was displayed from time to time for the benefit of growers and shippers and the results were so outstanding that the commercial handlers of Apples in the North-west were anxious for more extensive tests. There were several large orders for oiled wrappers in 1921 and in 1922 approximately 200,000 lbs. of oiled paper were used in the Pacific North-west, most of it in the Wenatchee and Yakima districts.

Consignors varied their tests in different ways; some sent out truck loads half in oiled wraps and half in common unoiled paper, while others found it advisable to despatch their fruit in unoiled wraps early in the season on account of the development of scald and held their oiled wrap Apples in storage for better markets.

Wenatchee and Yakima growers have endeavoured to hold the late-keeping Winesaps for the May and June market (corresponding to November and December in Australia), when other Apples are usually gone; but scald has often thwarted this plan or caused them to suffer loss on such late-kept fruit.

In 1922 one of the largest packers in the Wenatchee district packed 40 truck loads of extra fancy Winesaps in oiled wraps and held them in cold storage at Wenatchee as a test for this late market. Fruit from the same orchards packed at the same time and stored under the same conditions except for the wraps used began to show scald in the early part of March (September in Australia), and was moved to market by the early part of April (October in Australia). **The oiled wrap Apples remained free from scald and in fine condition,** and consignments from this lot were started the latter part of April. The prices received on the New York auction for the first six trucks of this late shipment averaged 12/6 per box f.o.b. Wenatchee. On some of the sales the oiled wrap fruit brought **a premium of 5/- per box** over similar fruit in common paper sold on the same market at the same time.

In another case a truck of large sized Staymans in oiled wraps was held in Wenatchee until early April and then forwarded to New York. The inspector's report

showed no scald

and practically perfect condition upon arrival and the receiver wired that it was the finest truck of Staymans he had ever seen on the New York market so late in the season. Similar results attended shipments to Boston and other markets.

The results from the oiled wraps on the 1922 crop have been so satisfactory that several of the large marketing organisations have put out

statements advising their use the coming season.

In the Wenatchee district the orders for oiled paper for the 1923 crop are exceeding those for common wraps and large quantities are likewise being ordered in Yakima, Hood River and other districts of the North-west.

Some growers plan to use oiled wraps exclusively, while others will use them only on the late-keeping varieties. The present indications are that the

demand for oiled paper

will exceed the supply.

The cost of the oiled wraps is 1 cent to 2½ cents per box greater than the ordinary wraps, but with claims and allowances for scald eliminated, and the fruit in better condition to hold for a satisfactory market the additional cost is considered a good investment.

HOW I GROW RASPBERRIES.

Some Hints from U.S.A.

I plant red Raspberries in rows, about four feet between the rows (writes Mr. G. H. Waterman, of New York, in "American Fruitgrower"). Keep the suckers, however, out so the canes will not be closer than six inches in the row. Cultivate the same as for Potatoes, and be sure to keep all the grass and weeds out. Pinch back the tips of canes when about 2½ feet high to make them branch. This will more than double the amount of fruit you will get. I set a post every 16 or 20 feet in the rows and stretch a strand of smooth wire about 2 feet from the ground. This helps to keep the canes upright and prevents the pickers from going through the rows and breaking down the young canes.

After the fruit is picked, cut out all the canes that had berries on and burn; then scatter about a handful of nitrate of soda on the upper side of each row. I use about a handful to every 8 or 10 feet. Do not get it too close, say 1 or 2 feet, and work in the soil with hoe or cultivator. This will give you a rank growth of canes for the next year. I spray with lime sulphur about 1 to 12 in the spring before the growth starts.

I use the same general method with blacks except that I keep them in hills 4 feet apart and use 2 wires instead of 1. The top wire I put about 4 feet from the ground, tying the canes to the wires. Do not forget to pinch off the tips.

Held Over.—Owing to receipt of matter for publication at the last moment before going to press, the article "In Lighter Vein" has been regretfully held over.

Some people seem to be happy for no particular reason except that they just got started off in that direction.

Successful Citrus Shipments

A Remarkable Discovery.

Lemons Travel to London and Back to Australia in Perfect Condition, without Refrigeration.

Triumph for Adelaide University.

Great interest has been aroused in citrus-growing circles over the discovery of a method whereby Oranges and Lemons can be shipped overseas without refrigeration, and arrive in perfect order.

Briefly, the method is to dip the fruit in a harmless solution, discovered by a scientist at the Adelaide University.

OWING TO INCREASED PLANTINGS of citrus trees, growers were becoming alarmed over the prospect of finding a market for their fruit, and with a steadily increasing annual surplus cases, action was imperative to find a means of cheap and safe shipment whereby a profitable outlet could be obtained overseas.

In the past the difficulty has been to land even refrigerated produce in good order. Even this season much of the Australian citrus sent to England arrived unsound.

Recognising there was likely to be a glut of citrus fruit in Australia, Mr. A. Hooper, a Salisbury (South Australia) grower, put the problem before the Adelaide University, and for a year Mr. H. R. Marston, the administrator in bio-chemistry, was engaged on the problem of treating the fruit so that it could be

shipped without refrigeration,

and reach the world's markets in good condition. It was a stiff proposition, but Mr. Marston has succeeded.

A fair amount of research work was done from a purely biological point of view, and then a start was made with experiments in a big way. Formerly all citrus fruit was cut from the tree, the hands of the pickers being gloved. It was wrapped in tissue paper and packed in special boxes for refrigeration purposes.

Under Mr. Marston's system the fruit is picked without any special precaution, dipped in a vat of solution, and packed in the cheapest hardwood case that can be made. **No refrigeration is necessary. The cases can be stowed anywhere in the holds or even on deck, and among any sort of cargo.**

Five months ago a trial shipment was sent for a trip in the Largs Bay, accommodation having been provided on the vessel by the Commonwealth Government. No attempt was made at grading, and stuff with blemishes on it went through as well as sound fruit.

Every Lemon, however, was dipped, except one "control" case which was sent in the ordinary way.

The cases were stored wherever the captain had room (writes the "Adelaide Advertiser"), and there was great interest evinced at the University a few days ago when the unopened cases came back.

The treated fruit was found to be in perfect condition, and the "control" case was putrid.

Considering that the fruit journeyed

twice through the tropics

the results speaks volumes for the Adelaide University and Mr. Marston.

In freight costs alone, by reason of being able to dispense with refrigeration, it is estimated that an enormous saving per annum will be made for the new method. That is only the beginning of the benefits, as a greater return still will come from the absence of loss in transit and the certainty of being able to clear a glut by shipping it abroad.

It remains for the experiments to be carried out commercially: but it would appear that the tests so far are so satisfactory as to satisfy the highest hopes.

On September 1st the "Largs Bay" left from the Outer Harbor with a further trial consignment of 15 cases, including Oranges. These will be sealed, and on their return they will be delivered intact to the officials of the Citrus Growers' Association.

Mr. Marston states that the dipping solution used was quite harmless, a fact which was borne out by the perfect flavor of Lemons from the first shipment that were cut for sampling.

FUMIGATING CITRUS FOR RED SCALE IN SOUTH AUSTRALIA.

The Fumigating Plant Operated by Department of Agriculture is Appreciated.

The attention of the Horticultural Branch of the Department of Agriculture was recently directed to the appearance of red scale in citrus trees in the Gawler district (states the S.A. "Journal of Agriculture"). At the request of a number of local commercial growers, the departmental fumigating plant was operated there during the week for the purpose of suppressing the pest. This plant was established 11 years ago, and has been in continuous work since. During the past years it has been engaged principally in the subur-

ban areas and the Salisbury Orangeries.

Some 23,000 trees have been treated during the past 12 months, and it has been amply demonstrated that the use of hydro-cyanic acid gas is a satisfactory means of controlling an otherwise very destructive pest of the citrus family.

In the course of the Australian Fruitgrowers' Conference held in Melbourne recently, at which delegates from all States of the Commonwealth attended, the South Australian Horticultural Instructor (Mr. Geo. Quinn), by request, delivered an address dealing with the operations of the fumigating plant in South Australia. As a result of this officer's explanation of the system in operation in South Australia, growers and officials interested in the production of citrus fruits in Western Australia, New South Wales, and Queensland expressed their intentions of endeavouring to have established in their respective States a similar organisation and plant for the control of red scale.

SELLING THE CITRUS CROP.

Attitude of Victorian Citrus Association.

The Secretary of the Victorian Central Citrus Association supplies the following reply to the article in August "Fruit World":—

"The gravamen of the article in August 'Fruit World' is the inference that the grower is not receiving the full market value for his fruit 'as market congestion caused through diverting the fruit into narrow distributing channels is liable to cause sales to be made at less than the legitimate market value.'

"Firstly, let us consider what is the 'legitimate market value' and who fixes it? We will take the position existing before the V.C.C.A. came into existence, when the fruit was distributed among twenty or more agents. Did these agents come together and agree at what price they would sell the Oranges? Of course not. Such a thing was recognised as impracticable. On the contrary, each agent with his eye on his neighbour sought to get the best price for the grower, and at the same time retain the confidence of his customer by charging him the most reasonable price. The agent knew that if he quoted too high a price in the interest of the grower, his customer would simply go to another agent.

"The old system therefore amounted to a competition among agents to please customers by giving them the best deal because the customer was on the spot and could demand it. If his offer was not accepted by one agent he could go to another, and if the latter declined to come down in price, he could go to a third, and thus by playing one agent off against another he could eventually get his fruit practically on his own terms. No agent likes to see his rival's stores being cleared and selling commission thus being collected, while his own store remains congested because he is sticking out for a better price for the growers' fruit. The grower is absent; the customer is at the agent's elbow. In these circumstances, whose interest is likely to be served? The inevitable result is that the agent brings down his price to the level of that of his competitor.

"So when we come to consider the original question—'What is the legitimate market price and who fixes it?' we find that the owner of the fruit has nothing whatever to do with it, but that it is fixed by the influence of the customer whose object is to secure the fruit at the lowest possible price (for which he is not to blame), and the selling agent who deserves sympathy because he is in the unfortunate position of trying to serve two masters, namely, the owners of the fruit and the purchasers whose interests are diametrically opposed. This is the system which has grown up with the fruit trade. It never has been satisfactory, and never will be, because it is fundamentally wrong.

"Secondly, let us consider the matter of 'market congestion caused by diverting the fruit into narrow distributing channels.' Presumably the argument is that the appointment of a certain number of agents to deal with a particular kind of fruit brings about market congestion. There is no foundation for such an assertion. In fact, the very opposite is the case. Before the V.C.C.A. came into existence all the agents had a free hand, and the result was market congestion and one glut after another, that threatened ruin to every citrus grower.

"When the V.C.C.A. was established, it was decided to limit the number of agents and to appoint a market representative to watch the interests of growers. Thirteen agents belonging to the Wholesale Fruit Merchants Association were selected, by ballot, but in course of time and actual practice, four or five of these accredited agents handled the bulk of the fruit. Thus the fruit, by natural process, got into 'narrow distributing channels.' Even before there was any V.C.C.A. certain of the agents became recognised as the foremost dealers in Oranges. Their business methods diverted the fruit into their own narrow distributing channels, but they were not attacked on that score. Similarly certain agents are to-day recognised as pre-eminent in the Pineapple and Banana trade. Are prices suffering because that trade is diverted into those narrow channels? No amount of argument or explanation will alter plain facts.

"If the control of the V.C.C.A has been prejudiced it would show in the prices. But what has been the result? The V.C.C.A. market representative states that generally speaking this season there has been no congestion in the market whatever, but that, on the contrary, it has been at times difficult to supply the demands of the four authorised agents, and that prices on the average have been better this season than in the last two years. It cannot be denied that the four agents who are now handling the V.C.C.A. fruit are not only long established and of ripe experience, but that they are also among the members of the Wholesale Fruit Merchants Association, who dealt with the largest percentage of citrus fruits before the V.C.C.A. came into being.

"As to whether 7½ per cent. is payable as a selling commission, there is room for difference of opinion. It can be admitted that it is not likely to be payable if the marketable citrus crop is to be divided among thirty agents, each with his big staff of storemen and salesmen and teams of horses, or motor lorries. But because a larger number of selling merchants than are required seek to obtain a living off the fruitgrower, the latter is calmly asked to submit to a selling charge that is out of all proportion to the services rendered.

"In N.S.W. and South Australia the grower is not faced with such a high charge as the Melbourne Fruit Merchants' Association seeks to impose. The V.C.C.A. is desirous of working amicably with these selling agents, but it must be recognised that the grower has some rights and that his interests must be protected.

"The Executive of the Fruit Merchants' Association was given every opportunity of discussing the terms of the proposed V.C.C.A. agreement before this season opened, and its reply was a solid objection to almost every clause. The agents, or at least twelve of them, who acted for the V.C.C.A. last year, were graciously prepared to sign the V.C.C.A. agreement for 1923 if they were paid 10 per cent. selling commission; had all V.C.C.A fruit consigned to them, and were left at liberty to sell at whatever price they thought fit. They stated these terms in an official letter. At the same time they firmly objected to supply duplicate account sales. Naturally, the V.C.C.A Executive rejected these humiliating terms, but the agents, after several interviews, intimated that their stand on the above matters was final. For the agents to say now that they did not have an opportunity of discussing the position is not putting the case fairly. The plain truth is that the agents in the early stages thought they held a winning hand, and could dictate terms. They realised their mistake too late.

What are the latest statistics relating to the fruit industry? Full information is contained in the Fruit World Annual. Price, 3/- (in Australia and New Zealand), post free from 9 Queen-street, Melbourne

CARE OF THE HORSE.

Useful Hints.

In the course of a paper dealing with the "Care of the Horse," Mr. W. Hawke, of McLachlan, South Australia, recently enumerated a number of points that should be avoided by the man in charge of the team (writes the South Australian "Agricultural Journal.") In the first place, he said, the teamster should not expect four horses to do the work of five. Long hours should be avoided. For winter operations he favoured a day of eight hours, whilst during the summer months the team should be able to do 10 hours each day, with about one and a half hours for dinner.

Time was saved by feeding the horses out of nosebags in the paddock, and if the chaff was damped, a drink in the middle of the day would not be required.

The horses should have a fairly large stable yard, so that they could move around when they felt inclined.

The team should not be fed more than twice in the stable, and when the harness was removed at night,each animal should be allowed from 25 lbs. to 30 lbs. of chaff. In the morning another 10 lbs. of fodder could be given to the horse, or the amount could be increased or decreased according to the manner in which the night feed had been eaten.

The mane should be kept short, because a long mane frequently became knotted and chafed the shoulder.

A folded super bag should always be worked under the collar; it was an excellent preventive of sore shoulders, and doubled the life of the collar.

If any horse was ill, it should be given a rest. Only one spare horse for each team should be kept in the stable. Dosing with medicines should be avoided; in special cases of valuable animals, the services of a veterinary surgeon should be called in to prescribe a cure.

The fodder supplies of the team should not be stinted. For a nosebag he suggested 10 lbs. of chaff and 5 lbs. of oats. Any of the chaff that remained uneaten could be emptied into the manger in the morning.

It was a good plan to sow oats for green feed for the horses, because that assisted in keeping them in good health.

Iron mangers with holes punched in the bottom to sieve out the dust, etc., were favoured by the speaker.

In the discussion that followed, Mr. W. Hayman considered that horses could with safety be dosed by the farmer with homeopathic medicines.

The "Annual" contains 130 pages of bright information, illustrations and statistics. It is bound in stiff covers for permanent filing. Price, 3/- post free in Australia and New Zealand from The Fruit World, 9 Queen-street, Melbourne.

Organisation in the Fruit Industry

Sectional Organisation Desirable.

How California Conducts a Successful Citrus Organisation.

IT IS GENERALLY CONCEDED that there is urgent need for better organisation amongst fruitgrowers.

Particular interest just now is being paid to the efforts of the citrus growers to organise their section of the industry.

It is with the idea of being of the best service to growers that we are regularly publishing information concerning successful organisation amongst fruitgrowers in Australia and other parts of the world, so that, where adaptable, the successful lines may be adopted here.

'Phone Central 8479

F. W. Vear

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Solicits consignments of APPLES, ORANGES, BANANAS, PINES and all other fruits.

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It will probably be found in the long run that each section of the fruit industry will organise to suit the particular needs of such section, i.e., the problems of the Apple grower are not necessarily those of the grower of Bananas or Strawberries.

It is along these lines that the American and Canadian fruitgrowers have attained their best successes.

This, too, has been demonstrated that there is no need for antagonism to exist between grower, wholesaler and retailer. The buyer will always want to purchase at the lowest figure, and the seller will always want to sell at the highest price. This practise is universal. But recognising these and other factors, there are many matters in which all concerned in the growing and sale of fruit have a great deal in common.

We now publish hereunder extracts from J. Eliot Coit's book, entitled, "Citrus Fruits," which is recognised as the world's standard work of reference on this subject.

Under the heading of Marketing Mr. Coit gives details of the Californian Fruitgrowers' Exchange, to which frequent reference has been made in these columns.

These extracts are worthy of the close perusal of our thoughtful readers.

THE CALIFORNIA FRUIT GROWERS' EXCHANGE.

This great co-operative organisation of growers is the child of necessity (writes Mr. Coit). The season of 1892-93 was particularly disastrous as far as turning fruit into money was concerned, and the market conditions and arrogance of the railroads was intolerable. Accordingly, the Southern California Fruit Exchange was organised in Los Angeles in October 2, 1895, in order to provide certain marketing of the fruit by more uniform methods. Then years later the name of the organisation was changed to the present title.

The California Fruit Growers' Exchange has its home office in Los Angeles. Its organisation was tersely described by the late G. H. Powell (then General Manager), as follows:—

"The California Fruit Growers' Exchange is an organisation which acts as a clearing house in providing the facilities through which 6,500 growers distribute and market their fruit. There are three foundation stones in the exchange system—

"(1) The local associations of growers;

"(2) The district exchanges; and

"(3) The central exchange.

The local associations, the district exchanges, and the central or California Fruit Growers Exchange are organised and managed by the growers on a non-profit co-operative basis, each of them operating at cost, and each distributing the entire net proceeds to the growers after operating expenses are deducted.'

The Local Exchange.—The growers usually organise as a corporation without profit, issuing stock to each member in proportion to his bearing acreage, to the number of boxes he ships, or in equal amounts to each grower. The association assembles the fruit in a packing-house, and there grades, pools, packs, and prepares it for shipment. The associations are managed by a board of directors through a manager, and are conducted exclusively for the benefit of the growers. They declare no dividends and accumulate no profits. The fruit is pooled each month, or for a shorter period, each grower receiving his proportion of the proceeds received for each grade shipped during the pool. The fruit is marketed through the district exchange, of which the association is a member,

through the agents and facilities provided by the California Fruit Growers' Exchange."

The District Exchange.—These exchanges are corporations without profit. The district exchange acts as a clearing house in marketing the fruit for the associations through the California Fruit Growers Exchange, and acts as a medium through which most of the business relations between the exchange and the local associations are handled. The district exchange orders cars (railway trucks) and sees that they are placed by the railroad at the various association packing-houses; keeps record of the cars shipped by each association, with their destinations; informs itself, through the California Fruit Growers' Exchange, of all phases of the citrus marketing business; places the information before the associations; receives the returns for the fruit through the central exchange, and returns the proceeds to the associations."

The Central Exchange.—"The California Fruit Growers' Exchange is a non-profit corporation. It is formed by the affiliation of the district exchanges. It is managed by a Board of Directors through a general manager, one director representing each district exchange. The function of the Central Exchange is to furnish marketing facilities for the district exchanges at a pro-rata share of the cost. The exchange places bonded agents in the principal markets of the United States and Canada, defines the duties of the agents, and exercises supervision over them. It gathers information through them of conditions in each market, receives telegraphic advices of the sale of each car, and furnishes the information every day in bulletin form to the local associations.

"The Central Exchange handles all claims; conducts an extensive advertising campaign to increase the demand for citrus fruit, and develops new markets. The Central Exchange levies an assessment against each district exchange for a pro-rata share of the expense on the basis of the number of boxes shipped. It declares no dividends.

"It does not buy or sell fruit or any other commodity, and exercises no control either directly or indirectly over sale or purchase.

"Its function is to provide facilities for the distribution and marketing of the fruit for those shippers who desire such facilities.

"Under the exchange system every shipper reserves the right to regulate and control his own shipments; to develop his own brands of fruit; to use his own judgment as to when and in what amount it shall be shipped, and the price he is willing to receive, reserving the right of free competition with all other shippers, including the members of the same organisation, uncontrolled by any one.

"The agent in the market acts directly under the order of the shipper, who determines the prices at which each car shall be sold outside of the auction markets, and all other matters connected with its distribution, the California Fruit Growers' Exchange acting as the medium through which orders pass from the agent to the shipper, **but never selling fruit or determining the price at which the fruit shall be sold.**

"The exchange is a democratic organisation; the growers exercise control over all matters. Membership in the exchange is voluntary; a grower may withdraw from an association at the end of a year; an association may withdraw from a district exchange, and a district exchange may withdraw from the central exchange —these relations being set forth in the various contracts that hold the members together.

There is no attempt on the part of the central exchange to regulate shipments, to eliminate competition, divide the territory or business, or to influence prices.

"In this connection its functions are to keep the associations informed daily regarding the shipments from the State; the general movement of exchange cars, the general conditions of the different marketing points; the prices at which the exchange fruit is sold; and in furnishing such other information as will allow the growers and shippers, through their association and district exchanges, to decide the questions of distribution and marketing for themselves."

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Victoria

Victorian Fruitgrowers' Central Association.

The monthly meeting of the Executive of the Central Association was held at Melbourne on September 24th, the President (Mr. V. R. McNab) being in the chair. It was reported that the proposed organisation by sectional committees was approved in several country districts. The Harcourt Fruit Supply Co. Ltd. was accepted into membership.

With regard to the conference between the Fruitgrowers and Housewives' Association, it was resolved to support the Committee appointed to go into details regarding the formation of a Government Fruit Bureau.

In reply to an application from the United Berry Growers' Association for membership on behalf of several local affiliated branches, it was decided to reply that the rules would not permit of this, and Associations must join by paying the usual 5/- per member. Further, that the matter of sectional organisation be dealt with at the next annual conference.

Mr. Bailey drew attention to the heavy charges by manufacturers for spare parts of machinery. It was decided to defer this and other matters of the Conference to the next Executive meeting.

Spraying Oils. — The President states that the Vacuum Oil Company advised that if growers could secure a remission of the duty on spraying oils, it would mean 3d. per gallon less to the growers, which represented 10/- per barrel—a total sum of £50,000 annually to fruitgrowers generally.

APPLE GROWERS' ASSOCIATION FORMED.

A conference of about 40 Victorian Apple and Pear growers was held in Melbourne on September 26th. Mr. F. W. Vear occupied the chair. It was decided to form an Apple Growers Association. A draft constitution was generally approved. The following provisional committee was appointed — Messrs. Lang, Bailey, Moody, Carne, James, Mock, Bunt, Thomas and Mair. In addition to a number of other resolutions, the following was carried:—

"That the Federal Government be approached with a view to reducing the overseas freight of 3/ per case, the Government also to be asked to pay a bounty of ½d. per lb. on export fruit. Failing the reduction in freight, a bounty of 1d. per lb. be paid on all export fruits."

Superintendent of Horticulture.—The Victorian Government is receiving frequent reminders of the necessity for the speedy appointment of a Superintendent of Horticulture. Free advice to the Ministry is being tendered by sections of the press, but the Ministry will probably not be stampeded into making a hurried appointment.

The time is long overdue for the appointment of a capable officer to organise the Horticultural Branch. The other States have a long lead over Victoria in this respect. It is to be hoped that the qualifications, when announced, will not include, as previously, an alarming array of subjects of which the successful applicant should be the master. The Superintendent of Horticulture, when appointed, will probably co-ordinate the services of technical men on the staff to deal with viticulture, citrus, orchard supervision (which needs to be greatly strengthened), the entomologist, plant pathologist, pomologist; and have some effective voice in regard to export supervision.

The fact that the Plant and Fruit Trees Nurseries would also be included in the Horticultural Branch necessitates obtaining the services of a man of wide experience.

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There are many cultural problems yet to be solved, which demand investigation and experiment over a series of years (manuring, pruning, spraying, stocks, etc.): extended cold storage experiments; tests with beneficial parasites, the compiling of statistics showing acreages, kinds of fruits and varieties, are avenues of usefulness.

If a man can be found to capably undertake these duties, and he be a business man and administrator in addition to his scientific training, he will do much to advance the horticultural industries of the State. Also, he will earn his £750 a year.

Cabinet Changes.—During September political changes occurred, and the Cabinet was re-constructed. Mr. Lawson remains Premier, but the Assistant Minister for Agriculture, Mr. Pennington, is amongst the slain. Mr. F. E. Old is Minister for Agriculture and Railways. It is anticipated, however, that the Department of Agriculture will be largely administered by Mr. M. E. Wettenhall, Hon. Minister.

Fruitgrowers generally regret that the Department of Agriculture, unquestionably the most important, is not to be administered by a full-time salaried Minister.

ROYAL AGRICULTURAL SHOW.

Good Displays of Fruit.

The Annual Show of the Royal Agricultural Society was held from September 20 to 29. Good attendances were reported throughout. The extension of the Show by three days was appreciated by exhibitors and visitors. The Show was a record one, and the entries and exhibits were more numerous than in previous years.

A pleasing feature was the large display of deciduous and citrus fruits in the Agricultural Hall. Eleven entries were recorded in the competition for the shield presented by the Fruit Cool Stores Association of Victoria. The entries were staged in the form of Apple and Pear pyramids, and were very tastily arranged. First prize was secured by the Wantirna Co-operative Cool Store Association, with East Burwood, Diamond Creek, and Croydon, second, third and fourth respectively. Ringwood, Harcourt, Blackburn and other districts also exhibited. The winning exhibit, which was presented to the Austin Hospital, comprised:—Apples —Red Rome, Rome Beauty, Stewart's, Jonathan, Granny Smith, Delicious and Yates. Pears—Winter Cole, Josephine, Madame Cole, Beurre Bosc. The fruit was of excellent

quality, and well selected, and reflected great credit on the district responsible for the picking and storing of the fruit up to the date of the Show.

In the citrus section Curlwaa secured first prize for the best district display of citrus fruit, with Perricoota second, and Riverside third. Bamawm and Tresco also exhibited. The displays included Navel and Valencia Oranges, Grape fruit, Lemons and Mandarins. The main prize winners in the other various sections were as follows:—Apples and Pears—Messrs. A. B. Herbert, R. E. Warren, J. H. Ely, J. Tainton &

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Sons, Woolf Bros., A. E. Collins, J. D. Grant, W. G. Whicker, W. D. Kewley, W. Muir, A. W. Briggs, G. E. Mock, A. E. Thiele. Citrus Fruits —S. P. Taylor, Riverside Citrus Co-operative, W. E. Missen, J. L. Holland, E. G. Wood, Mrs. M. M. Walker, Watson Bros.

A special display of canned fruit, staged by the Commonwealth Fruit Pool Board, was very favorably commented upon.

Attractive non-competitive exhibits of fresh and dried fruits were also noted in the Government Pavilion.

New South Wales

Murrumbidgee Irrigation Areas. Liquidation of Leeton Co-operative Co.

Heavy Losses Disclosed.

(By Our Correspondent).

After many months of endeavour on the part of the directors and a small section of the shareholders, the Murrumbidgee Irrigation Areas Co-operative Co. has been compelled to go into liquidation. Misfortune has dogged the life of this company from its inception. Formed in 1920 and supported by the great majority of the fruitgrowers at Leeton, in its first year a disastrous fire destroyed its dehydrator and buildings which were uninsured, so that some thousands were lost outright. In the next year a greater loss still was incurred, amounting to £11,000, and a cyclone so injured the buildings that extensive repairs were necessary.

These losses and the fact that most of the shareholders withdrew their support from their own company, rendered the position so hopeless that the only course open to the directors was to close down. The company had heavy loans on an overdraft guaranteed by the New South Wales Government amounting to about £35,000. The deficit, even after calling up the unpaid capital of about £7,000, will be about £16,000.

There was no necessity for this liquidation had the settlers been willing to support it by utilising the company's services in the handling of their fruit, and to taking responsibility for additional shares in order to put the finances straight. But it was the case of "giving a dog a bad name."

Notwithstanding that the inefficient management of the company in its early stages had been replaced by better men and methods, the concern was never given a chance by its shareholders to recover, so that co-operation on the Murrumbidgee Irrigation Areas has now received a blow which will re-act most adversely upon all other co-operative concerns on the Area.

Griffith Producers' Co-operative Co.—This company, at a recent meeting, resolved that owing to the lack of support by the Government, it was apparently impossible to make provision to handle the fruit crops of the large number of newer settlers who have not yet joined the company. Therefore, it was decided that no additions should be made to the shareholders until such time as finance was forthcoming. Seeing that most of these newer settlers are repatriated men, who have been persuaded and financed by the New South Wales Government to come to the Areas to grow fruit, it would appear a logical step to finance the men to the additional small extent needed to enable them to market it also. Failing some organisation which will attend to this most important side of fruit production, the position of the returned man does not appear too bright.

Citrus.—The Navel season is now over. Some 20,000 bushels were produced at Griffith, and over 45,000 at Leeton. The season has been a good one as regards returns, but the crop was light throughout. Much regret was expressed at the failure of the English shipment by the "Hobson's Bay," which involved heavy losses.

Lemons have been good property on the Area this year. Usually prices are low for the main crop (which is usually the only one here owing to winter frosts). There has been considerable competitive buying by Melbourne and Sydney cordial and peel makers, who are evidently finding the Irrigation Area Lemons are more desirable than those obtainable nearer home.

Valencias will begin about the end of September. The crop is light, but the fruit is of good quality. Considerable sales have been made in Leeton to Melbourne commission agents (who are not selling for the V.C.C.A.) at prices in excess of last years values, so that it would appear that the results should be good for those who market their fruit through their own co-operative organisation.

Farm Work.—The past winter has been the wettest for years, and the rain has greatly impeded the necessary plowing and pruning. Most of this work is well behind, and difficulty is already being experienced due to the dryness of the soil. Those who plowed in the autumn will have to replow, as the soil has set so hard that cultivation is impossible. Special attention is being given to manuring this season, superphosphate and blood and bone being mainly used. Considerable use of gypsum is also being made, as the Area soils appear to respond readily to this material.

CITRUS SHOW IN N.S.W.

The Hills District, which comprises Galston, Glenorie and Arcadia, etc. (N.S.W.), held its third Annual Fruit and Flower Show on 8th Sept. There were record entries, as well as record attendance, which was well over 1,500 during the afternoon.

The President (Mr. G. H. Parker) and the Hon. Secretary (Mr. F. A. Nicolson) with their committee, are to be congratulated on the success of their efforts.

The quality of the citrus exhibits was excellent. In the class "for three cases of distinct kinds of citrus fruits, open to packing sheds only," there was keen competition, there being eight entries. The first prize was carried off by Somersby (Penang Mountain) and San Remo (Dural) second.

In opening the Show, the Minister for Agriculture (Mr. F. A. Chaffey) said it was the intention of the Government to suppress disease through wiping out abandoned and neglected orchards, and the Bill would also provide for a registration fee of 1/- per acre—the funds to be directly controlled by the Minister.

The prize-winners and all exhibitors are deserving of credit for the excellent displays put up.

Answers to Queries.

Viticultural Queries.

Replies by Mr. F. de Castella, Victorian Government Viticulturist.

A correspondent from Griffith, New South Wales, writing to the "Journal of Agriculture" asks:—

1. For advice as to whether phylloxera resistant vine stocks should be planted, in view of the opinion expressed by Dr. Elwood Mead, that in America vignerons are not troubling about resistant stocks, as long as they are in a clean district.

Answer.—It is understood that such is often the case. In Californian viticultural periodicals, the fact is deplored, and the folly of thus ignoring the danger is often emphatically pointed out. It would be foolish to imitate America's bad example.

2. Is it true that vines grafted on resistant stocks yield less than vines on their own roots?

Answer.—It is not true that vines grafted on resistant stocks yield less than vines on their own roots. Provided the stock suits the scion and the soil, the yield is at least equal—indeed often superior.

3. Under irrigation, what are the best stocks for Sultanas and Currants?

Answer.—Under irrigation A.R.G.1 is an excellent stock for both Sultana and Zante Currant. So far as present experience goes, we do not know of anything better.

4. In the event of Phylloxera entering a vineyard, making it necessary to work it over on resistant stocks, would the soil need a rest, or could it be done at once?

Answer.—A vineyard dying from Phylloxera may be immediately replanted with resistant vines. They have nothing to fear from Phylloxera. Many Rutherglen vineyards were thus immediately replanted, and they have given excellent results. It is, nevertheless, well to plant vines on fresh land, just as one would do in the case of wheat or any other crop. A change is always desirable, but not on account of Phylloxera in the soil.

5. Would I get a stronger or better vine if I obtained No. 1 grade wood, such as that used for bench grafting?

Answer.—Graftable cuttings will not give you a stronger vine than the smaller ones—an equally vigorous vine will result from either. The vine struck from the smaller cutting will, in fact, have less pith in its centre—a trifling advantage except, perhaps, in the case of Yema grafts executed on rather slender stocks.

6. Is there anything against planting such wood in nursery rows, budding it the following season and planting out as dormant buds?

Answer.—I should much rather plant out rootlings, where they are to remain, and "field-graft" them. Budding or grafting in the nursery means a delay of at least a season before the vines bear fruit. Cuttings may be first struck in the nursery, though this is not necessary—cuttings may be planted direct.

7. What is the best time to graft two-year-old vines—before or after shooting?

Answer.—It is better to graft when one year old (from plantation) than to await the second season before doing so. Early grafting is to be recommended if the spring is a favourable one; in a wet spring, graft late.

The Annual Conference of the Australian Dried Fruits' Association will be held at Melbourne, commencing October 23rd. Important matters are to be discussed. Reports will be received from delegates who recently toured the Old World countries. Mr. MacDougall, of Renmark, is remaining in England to assist the Australian Delegation at the Economic Conference.

THE ARBITRATION CASE.

Increased Wages Awarded.

As foreshadowed in our last issue, Mr. Justice Powers has delivered judgment in the plaint, Australian Workers' Union versus sundry fruitgrowers.

Employees, male or female, over 18 years of age, are to receive weekly 79/6; over 15 and under 18 years, 70/-; under 15 years, 50/-.

Sweat lumpers, etc., 85/6; expert pruners, 88/6. There are sundry exceptions: in some districts the wages are to be higher. Conditions are also laid down re housing accommodation, etc. Boards of reference are to be constituted. Further details will be published next issue.

NEW SPRAYING DEVICE.

"The Spray Pistol."

A spraying device of more than ordinary interest to the fruitgrower has been invented by an Australian orchardist, Mr. R. G. Edgell, Bradwardine Orchard, Bathurst, N.S.W.

This is known as the Edgell Patent Spray Pistol. As its name suggests it is a tool used for simplifying the spraying campaign, and the most remarkable feature about it is that the idea has never been thought of before.

Its length over all is only eleven inches; it weighs approximately 2 lbs., it has an instantaneous control action, and has a variable nozzle, which will give any character of mist or jet spray in a moment.

The Edgell Spray Pistol in Operation.

Being used with one hand only, the least movement of the pistol, on account of its proximity to the operator, gives an immensely wide range. It will drive a spray either through or over the densest or the highest tree, and from its peculiar internal construction, has an advantage over the spray gun, inasmuch as it causes a column of spray to be thrown which diffuses into millions of minute spray particles, and envelops the tops of the highest trees—a fact which is of great value in filling the calyx cups in the first codlin moth spray.

With this Spray Pistol one hand only is used when spraying, leaving the other free to handle the hose, and having an automatic cutoff, any character of spray can be adopted in a moment by a small turn of the nozzle with the finger and thumb while the cutoff is closed. This closing at any moment of the cutoff is an advantage, and a saving of

spray solution, as the moment the operator's mind is removed from the job he automatically closes the discharge. When a tree is finished with a long distance spray the cutoff is closed, and there is no necessity for the man to turn the pistol through a wide angle spray to close it.

With the Pistol it is claimed that it is possible to give the entire capacity of a pump into one man's hands, who will do more work than two men with extension rods and nozzles, hence being a great labor saver.

Gerald Da Costa

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G.N.R. Potato Market, King's Cross, N.1. Telegrams, "Kincrocost, London."
3-5 Pudding Lane, Monument, London, E.C., 3. Tel. Avenue 7990 Telegrams, "Fruits, London."
18 Stanley St., Liverpool. Tel. Central 888. Telegrams, "Geracost, Liverpool."
Southampton Docks (Facing No. 45 shed). Tel. Southampton 2207. Telegrams, "Geracost, Southampton."
American Branch, 202-4 Franklin St., New York. Cables, "Gerncost, New York."

It is a simple device made in only two pieces, taken apart with the finger and thumb, and has no washers or discs.

It has its own hose connection, which is unleakable and eliminates wear on the hose, which occurs at this part.

This Pistol is manufactured at the Rosebery Engine Works, and the distributors for New South Wales are Messrs. Buzacott & Co. Ltd., 7/11 Market-street, Sydney.

"An Excellent Production.'

"I consider 'The Fruit World Annual' an excellent production.'—C. French, Jr., Victorian Government Entomologist.

ORCHARD WORK AND THE TRACTOR.

Improved Draft and Anti-Rearing Device.

It has hitherto been a problem to orchardists who use tractors, to procure suitable implements to work behind these machines so that sufficient offset could be obtained to enable the plow or other implement to cover all the ground right up to the butts of the trees without going to the expense of purchasing specially constructed plows and cultivators.

It is generally after considerable thought and careful saving that an orchardist will go to the expense of investing in a tractor, and it sometimes occurs that the thought of the cost of the necessary tractor implements which must follow the purchase of the tractor, acts as a deterrent in the purchase of the tractor itself, and after purchasing a tractor it often happens that the additional cost of specially constructed tractor implements being prohibitive the orchardist is compelled to use ordinary orchard tools which, under these conditions, do not give the best results because of their inability to work close up to the trees.

The difficulty has been overcome by a well-known South Australian orchardist, who some time ago put a Fordson into commission on his property, and who was faced with two difficulties with this particular machine.

The first trouble was experienced when the plow became anchored and the tractor reared, but knowing of the likelihood of this happening, the driver was alert, and no serious consequences eventuated.

The country in which the tractor is working is very hilly, and is considered too steep in places to negotiate in safety with this machine, and consequently it was found that the driver had to be constantly on his guard on these grades, or a serious accident might result because of the tendency of the machine to go over backwards.

The second trouble was that with ordinary implements the draft could not be set far enough away from the machine to enable the whole of the striking out and finishing off to be done with these tools.

Accordingly a device was designed which overcame both these troubles at once. This device is an absolute preventive against accident from rearing, but it also enables light draft implements to be used with the greatest satisfaction, thereby saving the initial cost of expensive implements and also causing a very considerable saving in fuel owing to the lighter draft.

This fitting is simplicity itself. It has no working parts, and can be attached to the tractor in a very few minutes by anyone, the use of a single spanner only, being necessary. No alteration in the working parts or control of the machine is necessary. For farm work, especially where the draft is heavy, and the offset is not needed, the draft can still be taken from the centre, the original tractor draft plate being used if desired, but the action of the anti-rearing qualities remains unaltered, and because of this it is an invaluable asset as an insurance against accident from this cause. The fitting will also permit of a draft being taken from any height without danger. For orchardists it acts as a two purpose fitting—preventive against rearing, and a great saving in initial outlay as regards implements, to say nothing of the saving in fuel owing to the use of lighter implements. An advertisement with reference to the above occurs elsewhere in this issue.

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FRUIT OF ALL DESCRIPTIONS
All Consignments for U.K. will have Personal Supervision and Attention
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Exporter of fruit to English and Continental markets.
449-451 Flinders Lane,
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£2/2/- worth for 3/-. There is no catch in it. Order your copy of the Fruit World Annual at once. It is the most complete practical, scientific, statistical, and commercial review ever published of the fruit industries of Australia and New Zealand. Price 3/- post free from 9 Queen-street, Melbourne, Vic.

Tasmania

Items of Interest: Seasonable Cultural Notes

Port Huon Meeting.

(By Our Special Correspondent.)

THE SEASON PROMISES to be early this year. Blossoming is well advanced, and the setting of Plums, Apricots, and Pears shows generally for satisfactory crops. However, it is too early to give definite forecasts, the danger from late frosts being still present.

The general prospects for the coming season give indication of a big improvement in prices on overseas markets for fruit exported. The British Empire Exhibition will draw a very large number of visitors into London from all parts of the world. The Exhibition is timed to open in March, just when the first Australian Apples appear on the market, and will continue over the whole of the Apple season.

The outlook for stone and small fruits is not so favourable. The Commonwealth Government has definitely turned down the Australian Fruit Council's request for a pool, conducted on the same lines as last season, offering a subsidy in place thereof. At the time of writing, no definite arrangement has eventuated, and the growers of these fruits (especially Apricots and Plums) are in a very unsatisfactory position.

The small fruit crop (Raspberries, Black Currants, etc.), will no doubt principally find an outlet in jams, preserves, etc., but the stocks of these commodities on hand will make manufacturers shy of processing.

State Fruit Advisory Board.—A meeting of the Board was held at the Department of Agriculture, Hobart, on September 13th.

Fruitgrowers' Fund.—It was decided that a levy of ½d. per case be made on all fruit exported from Tasmania to create a fund for financing the Board, for advertising, and the general needs of the industry

The Secretary was instructed to consult the Crown Solicitor with regard to creating legislation for collecting the levy.

British Empire Exhibition.—Tasmania has been given the honour of designing the fruit trophy that is to be exhibited in the Australian Pavilion of the British Empire Exhibition.

Overseas Fruit Carriage. — Sir Henry Jones, who is returning in October, has given much consideration to the investigations of the Cambridge scientists and Mr. F. Wakefield. Sir Henry announces that the safe carriage of future shipments is practically assured. If this is correct, fruitgrowers and all interested in the industry will feel more confident. The damaged cargoes of the past seasons have done a lot to undermine the trade that had been built up in past years, and were causing a good deal of concern to the producer. Sir Henry advocates that the operations of the scientists be extended over the 1924 season.

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FRESH FRUIT EXPORTERS, JAM MANUFACTURERS (IXL Brand), FRUIT CANNERS, HOP FACTORS (owning the largest cool stores for this purpose in the Commonwealth).
Supplies of Corrugated Strawboard, Genuine Sulphite Paper, Nails and best Packing Materials available at all times.
Sole Distributing Agents for the Southern Tasmanian Associated Manufacturers of Evaporated (dried) Apples.
Agents for—
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24 Martin Lane, Cannon St. LONDON, E.C., 4.
AND HOBART, TASMANIA
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The High Standing and Long Experience of this Firm is a Guarantee that the Best Interests of Consignors will be conserved.

Grafting Experiment.—The Fruit Expert (Mr. P. H. Thomas) is arranging for the conduct of a series of grafting experiments during the present season.

Of late years, reworked trees have in many cases produced very unsatisfactory results, owing to the dying out of limbs and grafts, supposedly caused by fungus infection (Polystictus versicolor).

Mr. Thomas is anxious to obtain comparative results under different methods of grafting, and subsequent treatments, and has outlined an experiment that should yield valuable data on the subject.

* * *

ORCHARD NOTES.

SPRAYING FOR BLACK SPOT should be carried out during the months of September and October. Trees may be treated with either Bordeaux, Burgundy or Lime-Sulphur, the first-named finding preference. The one drawback to the copper sulphate sprays are that they are apt to russet the fruit; especially tender varieties, such as Cox's Orange Pippin, Jonathan, Dunn's, etc.

In such cases the Lime-Sulphur mixture may be used to advantage. The first spray is applied at the "pink" period (i.e.) when the blossom buds are separated from the bud cluster. It is advisable to treat each variety as it arrives at this stage. Subsequent sprays should be of weak lime-sulphur, as it is inadvisable to apply the copper sulphate sprays on fruit and foliage.

Powdery Mildew.—This fungus is causing a good deal of damage in certain districts, being responsible for the destruction of fruit buds and laterals upon infected trees.

The disease may be controlled by applications of iron sulphide or atomic sulphur. The former is prepared by dissolving three pounds of iron sulphate to every 50 gallons of water in the spray tank, and then adding 1 gallon of commercial lime-sulphur.

The mixture may be applied in combination with arsenate of lead, and needs to be thoroughly agitated in delivery.

The commercial preparation, atomic sulphur, gives good results, and is a much better mixture to put on, but is more costly. Two or three sprayings may be necessary at intervals in order to thoroughly clear up the disease.

Port Huon Fruitgrowers' Co-operative Co. Annual Meeting held last month in Hobart. Subscribed capital is £25,705, of which sum £16,103 has been paid up. The pulp account shows that on June 30, 1922, stock on hand was of the value of £73.505, and that the Association's small fruit advances amounted to £27,383. On June 30, 1923, the pulp and fresh kept sales appeared at £54,926, and the stock of pulp (Commonwealth account) £57,993, while other pulp and fruit was £6,292. Against the advance of £57,993 (Commonwealth account) stand the items of advances against consignments £17,389, and the

bank £40,604. The net profit for the year is £59, and apart from capital paid-up the leading liability is £73,510, representing the advances against consignments of fruit consigned to England. Assets include members debit balances £65,582, stock of pulp £6,292, sundry debtors £6,170, land £18,855, and cash, etc., £5,496.

The report and balance-sheet were adopted. It was decided to relieve members of the necessity of paying a levy on marketed fruit.

Messrs. Pearsall and Calvert were re-elected directors; Mr. Frost was elected in place of Mr. West. A vote of thanks was carried to the directors and the manager (Mr. Piggott).

BUNCHY TOP IN BANANAS.

Resistant Variety Claimed.

A Queensland grower claims to have produced a variety of Banana which is free from the bunchy top disease.

The new variety is named Vernon, being raised by Mr. W. A. Sands, of Mount Vernon, Nambour, Queensland. Suckers are to be tested by the Tweed Fruitgrowers' Co-operative Co. under careful observation.

It is stated that "Vernon" Bananas while not so prolific as Cavendish, fruits better, is not so subject to bruises, and ripens evenly: "Vernon" stands cold and wind better than other varieties.

Gardening Notes

In the Vegetable Garden.

TOMATO SEEDLINGS are now being freely planted, even in the colder districts. In warm districts Tomato seedlings were set out weeks ago.

Early Tomatoes bring good prices when marketed: later, prices decline as the bulk supplies come forward.

There is an increasing demand by factories for making Tomato sauce: the quality of this product from Australian grown Tomatoes is excellent, and the factories are to be commended on the excellence of the product which is put up. A considerable export trade is being developed.

Tomatoes should be planted in rows which are 2 feet apart, leaving 2 feet between each plant. Choose soil which has not previously had Tomatoes or Potatoes growing therein, for certain impurities may have been left in the soil from these earlier crops, giving a tendency to Black Spot, Irish Blight, or Spotted Wilt.

Soil for Tomatoes should be moderately enriched with old cow manure, or with bonedust and potash; not too heavily manured, or rank leaf growth develops to the detriment of the fruit.

Provide a stake or trellis, on which to support the plants. In warmer districts three main stems may be allowed to develop. In cold districts one stem only should be permitted to grow.

Pinch out superfluous side shoots, especially the laterals which grow where the leaf unites with the stem.

To assist in the setting further pinching out may be done by removing the growth beyond the flowers. Just as the flowers are maturing, these terminal shoots may be removed, thus causing the plants to set their fruit better, and directing the sap supply into the fruit itself.

Keep the soil between the plants well cultivated, being particularly careful to remove weeds.

Spray with Lime-Sulphur or Bordeaux to check fungus diseases. There are several controllable fungus diseases which attack Tomatoes. Experts report that on examining plants which are reported to be suffering from the mysterious Tomato Wilt, are in reality suffering from an attack of an ordinary fungus disease, which would have been checked by spraying with any recognised fungicide.

Evergreen Shrubs and Trees.

Now is a good time for planting ornamental shrubs and trees. These are invaluable to the fruitgrower, as they provide shelter, also handsome flowers and foliage, adding beauty to the landscape, and making the homestead a more homely place.

.. THE ..
Farmers and Settlers' Co-operative Insurance Company of Australia Ltd.

Capital, £100,000. **Subscribed Capital, £70,000.** **Paid Up £35,000**

THIS IS
THE ORCHARDISTS' CO.

for insuring his buildings, fruit in store, Workers' Compensation, and other risks. An orchardist who becomes a shareholder and places his insurances with this Company participates in the profits which his own business creates. Thousands of farmers and orchardists are already shareholders. Write for particulars.

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Hunter River Lucerne

Cleaned by our Special Machinery, and free from all weeds. SPECIAL QUOTATIONS for Cwt. or Ton lots on application.

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Write at once for our Special Quotations.

Spraying Oils, Fungicides, Raffia

Illustrated Catalogue and Calendar, post free.

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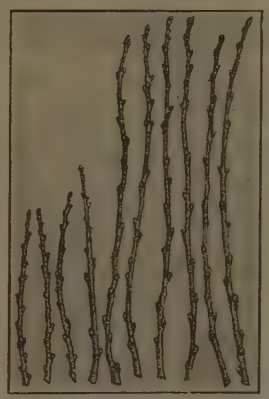
251 & 253 Swanston St., Melbourne



Without Ammonia. With Ammonia Balanced Plant Food in Peach Orchard Produces Bearing Wood.

Potash and Phosphoric Acid

Ammonia, Phosphoric Acid and Potash Balanced Plant Food Increases Growth.

THE MEANS of supplying to your trees, in the past, a balance ration of plant food has been a problem to which you have devoted considerable attention. While the question of phosphoric acid and potash has not occasioned you much concern, it has been extremely difficult to arrive at a decision as to the source of supply of

NITROGEN

the most important and expensive element in the dietary of plants, and the one unfortunately, of which the soil appears to have the least power of retention.

Nitrogen is a stem and leaf producer. It develops new wood, and adds a healthy green colour to the foliage, and is specially necessary for trees in bearing, ensuring reasonable growth of wood, abundant formation of fruit spurs, plenteous supply of blossoms, and complete development of the fruit.

SULPHATE OF AMMONIA

is at present the cheapest and most highly concentrated nitrogenous fertiliser on the Australian market, and wherever it has been applied to orchard trees results have fully justified its continued use as a means to

Increased Yields of Better Quality Fruit

Sulphate of Ammonia contains approximately 24½ per cent. ammonia, equivalent to 20 per cent. nitrogen in a form readily assimilated by plants. It may be used alone as a top-dressing, or in mixtures for a general application, containing potash and phosphoric acid.

Of special interest to Orchardists is handbook entitled "Productive Fertilisers," which deals with sulphate of ammonia in relation to all forms of agriculture, and with slight modifications to suit local soil and climatic conditions, the tables quoted for various crops might be followed throughout Australia. Copies of handbook "Productive Fertilisers" mailed free on request to:—

THE AUSTRALIAN SULPHATE OF AMMONIA PROPAGANDA COMMITTEE,
360 Collins Street.
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N.S.W. and Queensland: The Australian Gas-Light Co., Haymarket, Sydney: The Broken Hill Prop. Co. Ltd., 28 O'Connell St., Sydney; The North Shore Gas Co. Ltd., 193 Alfred St., North Sydney.
Victoria and Tasmania: The Metropolitan Gas Co., 196 Flinders St., Melbourne; The Broken Hill Prop. Co. Ltd., 320 Collins St., Melbourne.
South Australia and Western Australia: South Australian Gas Co., Waymouth St., Adelaide.

Wanted and For Sale

Classified Advertisements.

Advertisements under this heading, which cannot exceed one inch, will be classified as far as possible.

A valuable medium for assisting in the interchange of orchard equipment. If you desire to sell or purchase an implement, pumps, or any other orchard equipment, insert an advertisement in this column. Surplus stocks of cases, paper and other materials can also be disposed of through this column. Advertise your produce to growers in other parts.

Prices are as follows:—

Casual Advertisements, one or three months—9d. per line of six words. Nine lines to the inch.

Contract Advertisements, six or twelve month, 6d. per line of 6 words, 9 lines to the inch.

Send cash with order.

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FRUIT WORLD ANNUAL AND TRADE RECORD, 1923 edition available. 3/- posted—9 Queen Street, Melbourne.

PRUNING FRUIT TREES, By G. Quinn. Illustrated. 4/9 posted—"Fruit World," 9 Queen Street, Melbourne, Vic

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HEALESVILLE (Victoria) — 5½ miles from Railway; splendid road. 92 acres freehold, 12 acres orchard, 9 acres bearing. All up-to-date Apples and Pears; 3 acres 4 years old. Nine-roomed House, and four detached sleep-outs, subdivided (flats) furnished for letting. Post Office, Stables, Hay Shed, Packing Shed, and all latest machinery, complete. Assured local market. Sound investment. All particulars—JONATHAN, c/o "Fruit World."

CITRUS ORCHARD FOR SALE, Gosford district, N.S.W., on main road, 1 mile from beautiful Terrigal beach. Ten acres fully improved excellent soil; all cleared and planted; 3 acres odd bearing, 5 acres 1-year-old. Usual plant. Fine new Bungalow, large rooms and verandahs. All conveniences, garage. Tradesmen call daily. Price, £2,500. Full particulars from owner, F. D. SANDERS, Terrigal (N.S.W.).

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BAVE-U POWER SPRAY PUMP, Secondhand, in good order. Can be inspected in Melbourne. Full particulars. ESMOND RUSSELL, 60 Queen-street, Melbourne.

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Green Citrons and Shaddocks, Seedling Oranges, Tomatoes, Cherries for crystallising, Loganberries, Raspberries and Strawberries, Passion Fruit.

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Whiteman St., South Melbourne, Vic.

SUBSCRIBERS' PAYMENTS RECEIVED.

The following are the subscriptions received from August 20th to September 20th, 1923. The month quoted in parenthesis indicates to what date the subscription is paid. These are exclusive of the subscribers who have paid to local agents or to our offices in the various States:—

L. Ah Mouy (May, '24), Adelaide Chem. and Fertiliser Co. (June, '24), Geo. A. Agars (Aug., '24), G. M. Arnold (Aug., '24), B. A. Arndt (Feb., '24), S. B. Backhouse (May, '24), C. Banfield (Oct., '22), E. S. Baldwin (Dec., '23), Hon. S. Barnes (July, '24), P. Beecroft & Co. (July, '24), R. Beresinsky (Aug., '23), B. J. Bennett (July, '24), R. G. Bell (Aug., '24), H. Bishop (Dec., '23), H. K. Brooke (July, '24), T. A. Bath (Aug., '24), S. Bromley (Aug., '24), Basey and Howie (Aug., '24), California Spray Chemical Co. (Aug., '23), A. Campbell (Dec., '23), W. Carter, Jnr. (Aug., 23), J. J. Charlton (July, '24), W. J. C. Collins (July, '24), A. Copeland (Feb., '24), T. J. Cooper (Aug., '24) C. J. Chequidder (Aug., '24), W. H. Chilton (Aug., '24), Chas. Cooper (Aug., '24), C. W. Dally (Nov., '24), W. Dennis & Son (Dec., '23), C. H. Dobbin (Sep., '23), Duncan and Simpson (May, '24), R. O. J. Dunning (Aug., '24), M. T. Ellis (Nov., '24), E. A. Everett (Aug., '24),F. P. Floyd (Dec., '24), E. Feltham (July, '24), F. H. Frith (June, '24), W. Francis (Aug., '24), W. M. Gibson (June, '24), H. S. Gill (Dec., '23), B. Gosstray (Sep., '23), C. W. Grant (July, '24), D. Graham (Aug., '24), C. Gubler (July, '24), T. E. Guscott (Aug., '24), J. A. Guscott (Aug., '24), W. M. Gillard (Aug., '24), H. Gillam (Jan., '24), W. H. Harvey (Dec., '23), A. H. Headland (July, '24), F. Hodges (Feb., '24), Geo. A. Hunter (Aug., '24), E. R. Hampel (Aug., '24), H. R. Harris (Aug., '24), H. E. Hall & Co. (Aug., '24), W. O. Jones (Aug., '24), J. R. Jemison (Aug., '24), J. E. Knowles (Aug., '23), A. H. Kealley (Aug., 24), W. Littlefield (Sep., '24), L. Lewis (Aug., '24), H. J. Manning (June, '24), D. Mellis, Jnr. (Sep., '24), J. Monckton (July, '24), A. F. Morant (Aug., '24), E. T. Mead (Aug., '24), A. W. Magarey (Aug.,) '27), A. V. Mills (Aug., '24), E. J. Moritz (Aug., '24), A. H. McMurtrie (Dec., '23), R. L. McPherson (Sep., '23), H. McCarthy (Aug., '24), F. McGlasson (Jan., '24), A. A. Newnham (June, '24), W. F. Nickels (June, '24), K. A. Norman (Aug., '24), F. Olorenshaw (Aug., '24), A. Philp (Dec., '23), L. H. G. Polchet (Feb., '24), T. M. Price (Aug., '24), Price, L. J. (Aug., '24), E. Pitt, Snr. (Aug., '24), N. S. Padman (Aug., '27), W. Powell (Aug. '24), S. Phillips (Aug., '24), W. Perry (Aug., '24), H. J. Rix (July, '24), T. B. Robson (June, '24), Mr. Randell (Aug., '24), G. S. Rogers (Aug., '24), W. Seabrook & Sons Ltd. (May, '23), L. C. Sessions (Oct., '24), Mrs. Shead (June, '24), J. L. Smith (Sep., '24), T. Somerville (Aug., '23), W. P. Stephens (Nov., '23), F. Supplice (Dec., '24), F. H. Symonds (July, '24), J. D. Swan (Sep., '23), R. B. Sandercock (Aug., '24), J. G. Seidel (Aug., '24), A. Strachan (Aug., '24), John Stokes (Aug., '24), A. M. Taylor (Mar., '24), C. R. Toogood (July, '24), Tobacco By-Products and Chemical Co. (June, '24),F. D. Virgo (July, '24), H. Wharton-Kirke (June, '24), Williams Bros. (July, '24), T. C. Wills (Mar., '24), R. H. Woodland (Jan., '24), Yates & Co. Ltd. (July, '24), J. H. Young (Dec., '24), J. E. Young (Aug., '24).

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Everyone who has read the "Harvester," that charming book by Gene Stratton Porter, will know how largely herbs are used for curing human ills. As a matter of fact, many old and reliable Herbal remedies are still in use in a restricted way. That is because a thorough knowledge of how to prepare them is the difficulty. T. A. Dickson, Pharmaceutical Chemist, Geelong, makes a specialty of his A.M.S., a pure herbal extract, which quickly and effectively cures Indigestion and all Stomach and Liver troubles. Price, 3/-; or by post, 3/6, at all chemists and country storekeepers.

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Less than half the cost of Imported.

A Leading Firm of London Importers report on a large shipment of pears packed in trays with our WOOD-WOOL. This consignment certainly travelled well and arrived in very good condition, the wood-wool used in packing appearing quite suitable.

Write for quotations

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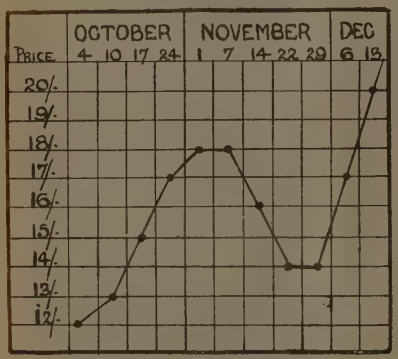
Interstate Fruit Trade.

Oranges and Apples in Brisbane. Interesting Details.

Can Fruit be Sold Wholesale at Too High a Price?

In the September issue of the "Fruit World," reference was made to the value of graphs as a means of indicating market fluctuations, and it was stated that much could be learned from a close study of the prices which different varieties of fruit brought at different times.

It may be suggested that one season's prices cannot be taken as a precedent, and that danger lies in a too



Graph, showing market fluctuations for Harcourt (Vic.) Yapeen seedlings in Brisbane, October to December, 1922.

close reliance upon the results of any past market circumstances.

Generally speaking, this is true. A slavish following of the price variations of a previous season would certainly be unwise as well as unprofitable, but it is a surprising fact that history in regard to fruit marketing has a habit of repeating itself in common with other kinds of history, writes Mr. Hedley Geeves, Growers' Agent, Brisbane, Q.

The two graphs selected for this issue, namely, Yapeen Seedling Apples from Harcourt (Victoria), Valencia Late Oranges from Arcadia (N.S.W.) both illustrate in a significant manner one of those controversial features of the fruit trade which sometimes occur. It may be difficult to realise from the grower's point of view that prices can climb to too high a level.

At first glance it might be considered paradoxical to suggest that the figure at which fruit is sometimes sold is so high that the grower suffers, but reflection will show that not only is this state of affairs possible, but it not infrequently occurs.

Both of the accompanying diagrams bear out this contention. In the case of Valencia Oranges, it will be noted that though light supplies, values jumped from 15/- on November 27th to 19/- on December 4th.

The result of this high price was twofold.

(1) Growers received voluminous correspondence, pointing out the wonderful Orange prices, and not unnaturally, they shipped heavily.

(2) Buyers on the other hand, found that when they paid 19/- for Oranges, they could not afford to retail them at a price within the limits of the ordinary consumer's purse.

Consequently, the sale amongst the retailers became slower, and when next day further supplies arrived, the retailers' slow sales were reflected in the market. Prices eased 2/-. Supplies still came forward, and quite a slump was brought about until four days after the 19/- market we were selling at 15/-.

The Orange market was undoubtedly spoiled because prices soared too suddenly for the public.

Had the rise been from 15/- on November 27th to 17/- on December 4th, it is not unreasonable to assume that we would have sold freely all the Oranges which came forward at that figure. As it was we had to wait till after Christmas before we could right the harm done at the end of November.

Normally, December prices for Valencias should be better than November, but even the Christmas trade did not overcome the collapse.

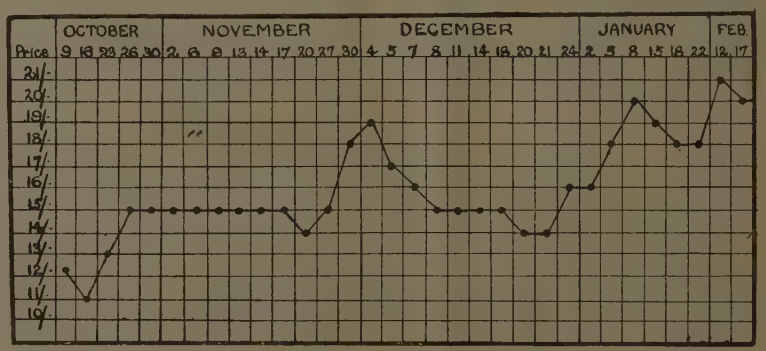
One important point which seriously affected this particular incident was the fact that when prices rushed too high the public switched its taste to Cherries, and such soft fruits as were available. In December, Peaches and other kinds of stone fruits became fairly plentiful, and these were sought after to the neglect of Oranges.

The case of Yapeen Seedling Apples is almost identical with that of Oranges, excepting that we were able to effect a complete recovery by December 6th. This was due to the fact that choice red Apples became very scarce, and naturally we took advantage of this circumstance.

In our opinion a valuable lesson is to be obtained from a study of market prices in past seasons. More particularly does this apply when comparisons can be made over a period of, say, five years, so far as they affect any one variety. The public taste is fairly conservative, and repeats itself nearly every year with certain modifications caused by climatic considerations.

Matters of general principle can be easily established, and one that we have proved to our own conviction is that so sure as prices rush to abnormal heights, unless, of course, crops are very light, they will collapse with a remarkable speed to a figure probably below normal, and a great effort will be necessary to repair the damage. **The market that pays the grower is the steady market.** When prices rise, let them rise at such a pace that the consuming public is not asked to pay 2/- per dozen to-day for fruit, which was bought at 1/6 yesterday. The consumer objects to big rises, and shows his objection by leaving the fruit alone.

We have been requested to deal with William Pears in a similar manner to the varieties treated above, and in last months "Fruit World," and we therefore propose submitting a graph of this variety, as well as one of a Tasmanian Apple.



Graph, showing market fluctuations of Arcadia (N.S.W.) Valencia Oranges in Brisbane, October, 1922 to February, 1923.

PERSONAL.

Mr. R. L. Tombs returned from America last week by the R.M.S. "Makura." His visit coincided with the peak of the 1923 pack, and his observations extended from Southern California north through Oregon, Washington and British Columbia. His firm, Messrs. Tombs and Howcroft Pty. Ltd., have accepted representation throughout Australia for the Anderson-Barngrover Manufacturing Company of San Jose and San Francisco.

Orchard, Vineyard and Farm Implements

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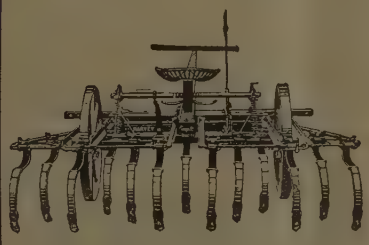
NO. 10 S.F. GENERAL PURPOSE PLOW. High Steel, Goose-neck Beam, Fixed Handles.

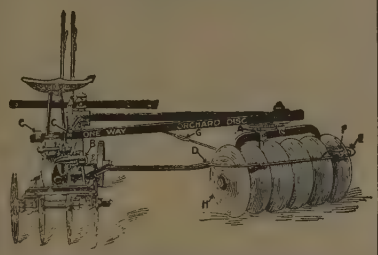
"HARVEY" GOOSE-NECK S.F. PLOW. With shifting or fixed handles. Made in 7, 8, 9 and 10 sizes.

"HARVEY" ORCHARD PLOW.

"HARVEY" 2-FURROW SHIFTING ORCHARD PLOW.



SPRING TOOTH RIDING CULTIVATOR.



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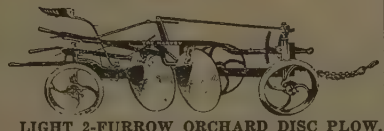
4-FURROW POWER LIFT TRACTOR PLOW.

"HARVEY" GRAPE HOE.

"HARVEY" SPRING TOOTH CITRUS & ORCHARD CULTIVATOR.



LIGHT 2-FURROW ORCHARD DISC PLOW.

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Show Rooms: F. R. Mellor, 440 Elizabeth St., Melbourne

Write for New Illustrated Catalogue

Progress in Bud Selection.

In the Brentwood section of eastern Contra Costa county, six miles from Byron, says the "'Oakland, Cal., Tribune," thirty acres were set aside in the association as a donation by William Kirkman, who purchased 1,500 acres in the Brentwood section for fruit purposes, all of which has been planted, and which is showing remarkable growth, testifying in strongest measure to the ideal climatic and soil conditions of this territory for fruit production.

On this 30 acres there is now shown a sight that is worth going many miles to witness, namely 460,000 little trees are showing above the ground —Peach, Apricot, Pear, Cherry, Apple, etc. Additional planting is going on.

These half million little trees are from seed imported from France, and some imported French seedlings.

All these trees are to be budded to varieties that have been selected by the crops of efficient experts in the employ of the California Bud Selection Association. Nothing is to be left to chance.

In addition to this, no tree is chosen for bud selection until after three years' trial—in other words, a tree in some orchard may have shown fine results for one or even two years and then fallen down in the percentage required. In that case, in spite of the time and labour lost in caring and watching for the particular results, that tree is cast out as unworthy.

The President of the California Bud Selection Association is F. W. Anderson, a pomologist and plant breeder of established reputation, a University of California graduate under the late Dr. Whitten, which is fame enough to those who know of the wonderful ability displayed in this line by Dr. Whitten.

Anderson is now superintending cross-pollenisation work in old orchards of the State to get the best bud selections possible.

Thus the worth to fruitgrowers of California of the work of the Bud Selection Association is clearly demonstrated. It means the highest possible grade of trees that science can produce.

That Brentwood, in eastern Contra Costa county, is the home of a thirty acre demonstration farm such as this is cause for sincerest congratulation. The future of this valley is already being compared to that of the Santa Clara section.—"American Nurseryman."

Australian Conference of Fruitgrowers.—The next Australian Conference of Fruitgrowers will be held at Hobart, Tasmania, during the week commencing April 28th, 1924. The Hon. L. M. Shoobridge, M.L.C., will preside.

Plum Stocks.

A Guide for Nurserymen and Fruitgrowers.

Myrobalan Stock Found Best.

How different root stocks affect the growth and yield of the common varieties of Plums forms the subject of a bulletin entitled Stocks for Plums, just issued by the New York Agricultural Experiment Station at Geneva, under the authorship of Dr. U. P. Hedrick, station horticulturist. Experiments were begun on the station grounds in 1912, in which six different stocks were tested out with fifteen varieties of Plums commonly grown in New York. The effects of the stocks on the growth of the different varieties for ten seasons, and on the yield for six seasons have been noted, and the conclusion reached that the present tendency among New York nurserymen and fruitgrowers to use Myrobalan for Plums is fully justified by the results secured in the station experiments.

"Cultivated fruit trees are unions of 'stock' and 'scion,' and these react on each other for better or worse. The fruitgrower, as well as the nurseryman, has much at stake in the stocks upon which his trees are grown. The station experiments show that of the stocks now in general use in New York, as regards vigour and productiveness of the resulting tree, Myrobalan is best for Bradshaw, Grand Duke, Italian Prune, Lombard, Reine Claude, Shropshire, and Drap d'Or. Abundance and Burbank grow about equally well on Myrobalan and on Peach stock. Wild Goose, Pottawattamie, Forest Garden, and Wayland, native Plums, will probably do best on Marianna stock, although they make very satisfactory trees on Myrobalan also. De Soto does best on roots of its own species. Fortunately, Myrobalan is now the commonest stock used in the nurseries and orchards of New York."

The bulletin is now available for distribution, and may be had free of charge by anyone interested in the subject upon application to the Station at Geneva.

PRUNES AND PLUMS ON VARIOUS STOCKS.

Experiments were carried out during the season 1922-23 at Yanco Experiment Farm with Prunes and Plums on various stocks. In the following table are shown the results as affecting growth and crop:—

Stock.	Variety.	Growth.	Crop (1923).
Myrobolan	Angelina Burdett	Good	Good.
Marianna	" "	Weak	Very good.
Apricot	" "	Strong to very strong	Fair.
Peach	" "	Very strong	Good.
Myrobolan	Clairac Mammoth	Good	Good.
Marianna	" "	"	"
Apricot	" "	"	Fair.
Peach	" "	Fair to good	Light.
Myrobolan	President Plum	Poor	Good.
Marianna	" "	Fair	"
Apricot	" "	Good	"
Peach	" "	Very good	"
Myrobolan	Robe de Sergeant	Fair	Fair.
Marianna	" "	Good	"
Apricot	" "	"	"
Peach	" "	"	"
Myrobolan	Prune d'Agen	Good	Good.
Marianna	"	"	Very good
Apricot	"	"	Light.
Peach	"	"	Very good

—"N.S.W. Agricultural Gazette."

THE IDENTIFICATION OF DECIDUOUS FRUIT TREE ROOT STOCK.

Mr. Warren P. Tufts, Assistant Professor of Pomology, and Meyer J. Heppner, Assistant in Pomology, University of California, U.S.A., recently carried out investigations on the question of root stocks. The investigations were carried out with two objects in view.

1. To determine, if possible, constant gross morphological differences between the more common rootstocks used for the propagation of deciduous fruits in California, that might be used as a means of differentiation when nothing more than a portion of the root system is available.

2. To differentiate between the various kinds of stocks on the basis of microscopic anatomical study of their root structure.

In a brief article of this nature, it does not seem advisable to attempt a lengthy dissertation of the methods employed, and the minute differences discovered. The observations briefly outlined below are the results of a years study, involving close examination of more than ten thousand microscopic sections and hundreds of individual roots collected under as

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widely varying soil and climatic conditions as possible. Roots of various ages were used in all cases.

Although many species of roots appear identical from external appearances, distinct differences are to be found in their anatomical structure.

The chief results of the investigation are as follows:—

Stone Fruit Roots Stocks.

1. With the exception of the Apricot, color should not be used as a criterion when trying to identify a deciduous fruit tree root stock. The color of the Apricot root is always beet-red.

2. The Almond and Peach roots can be separated by the character of the lenticels and bark surface. In the former the lenticels are smooth and rarely protrude more than one-sixteenth of an inch above the surface of the bark, or exceeed a longitudinal height (distance measured parallel to axis of root) of one-sixteenth of an inch. The bark of old roots is relatively rough. The lenticels of the Peach are decidedly rough, and protrude one-eighth inch or more above the surface of the bark, reaching a longitudinal height of the same distance. The bark of this root is always smooth.

3. Although the common Peach and Davidiana Peach are identical with one another from external appearances, they are distinctly different from an anatomical point of view.

4. The only definite method determined for identification of Myrobalan Plum root is of an anatomical nature.

5. The bitter and astringent taste of the Mazzard Cherry separates it from the Mahaleb.

Pome Fruit Root Stock.

1. Pear, Quince and Apple roots are identical with one another in many respects, externally and internally. The only positive means determined for the separation of these roots was by an anatomical study.

The writers realise that the above brief statements are of little practical value to the layman, nevertheless, the facts seemed to be of sufficient interest to present them at this time. Practically no difficulty is experienced in quickly distinguishing one Prunus root from another by the methods worked by Heppner. However, further studies will be necessary to enable definite differentiation between the roots of the various cultivated species of the Pyrus group.

It is hoped that these facts with adequate illustrations may shortly be made available to horticultural workers.

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The Sunshine Spray Pumps, manufactured at H. V. McKay's Sunshine Harvester Works, appear with new type engines. One of these is of 2 h.p., 4 cycle, horizontal type, hopper cooled. It is powerful enough to keep two spray guns going.

Another rig has a 2 cylinder 7 h.p. engine, and is designed so that it may be used as a portable engine for all farm purposes, as well as for spraying. It generates a fierce and very efficient spray. This year all the Sunshine Sprays are equipped with a mechanical agitator in the mixture tank. Spray guns of Sunshine manufacture, and the many other interesting and valuable lines for orchardists and farmers were exhibited at the Royal Show at Melbourne last month.

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Shelter, and the Hygienic Sty.

The raising of pigs is proving to be a valuable adjunct to orcharding.

Shelter is essential for pigs. Swine have been so long domesticated, raised under artificial conditions, and bred to turn all their energy to rapid growth and fattening, that they are very susceptible to dampness, cold, draughts, and hot summer weather. There are two main types of piggery commonly in use—(a) central houses, containing a number of pens, and (b) individual houses, holding but one or more pigs. The former are more convenient and save labour (writes the "N.S.W. Agricultural Gazette"), while the latter are less expensive to erect, are quieter, and can be removed to new ground if necessary, but of whatever type the house may be, attention must be paid to the following points:

1. Sties should, if possible, face the north or east, so that they will get the full benefit of the sunlight. Sun light is a most efficient germicide, and is a great help in keeping the sties sweet and sanitary.

2. Sties should be built on rising ground to ensure good drainage. This does not necessarily imply that they should be placed on the top of a hill, where the animals would be exposed to every wind that blows.

3. The roof should be sufficiently high to admit of the sty being cleaned easily. The idea of keeping a pigsty clean is revolutionary to some farmers, but disease and filth are associated as a rule, and cleanliness is essential to the preservation of health.

4. The walls should be smooth, so that there is no harbour for animal parasites. On this account walls of split bush timber are objectionable.

5. Allowance must be made for plenty of sunlight and fresh air.

6. The walls must be impervious to the wind, so that the sty is not draughty.

7. The floor should be impervious to moisture. The common custom of allowing pigs to sleep on the earth, while doing away with the necessity of bedding, has much to condemn it. The earth is easily rooted up, is damp and cold in winter, and is soon saturated with filth. Concrete makes the most sanitary floor, but, as it is cold and hard,, a sleeping platform of wood is necessary with it. If this is made sufficiently light it is easily removed for the purpose of cleaning the sty. A floor made of hardwood, well joined and raised above the ground level, is quite satisfactory; but floors made of slabs laid on the ground are little better than the earth itself.

If the points enumerated above are attended to the pigs will have dry, clean housing in a favourable situation, free from draughts, and yet with abundance of fresh air.

ANSWERS TO QUERIES.

Fumigating Citrus Trees.—"Citrus" (Lower Chittering, W.A.) writes:—

"The article in 'Fruit World' of August 1st, by Keith C. McKeown on Fumigation of Citrus Trees is much appreciated. I have not been successful in obtaining supplies of the finely powdered Calcium Cyanide. Can you tell me who to apply to? Also, are there any blowers on the market suitable for the work?

"We found when fumigating with potassium in the sunlight that leaf drop followed, and we altered to do this work after sunset. Do you advise working after sunset with Calcium Cyanide?"

Answer.—Calcium Cyanide and blowers are obtainable from Buzacott and Co. Ltd., 7-11 Market-street, Sydney, N.S.W. (who are the Australian agents).

In reply to your other question, Professor Quayle states that after sunset is the best time for fumigating, and also the safest time as far as the trees are concerned.

Additional information in regard to this matter, if required, is also obtainable from Buzacott and Co. Ltd., Sydney.

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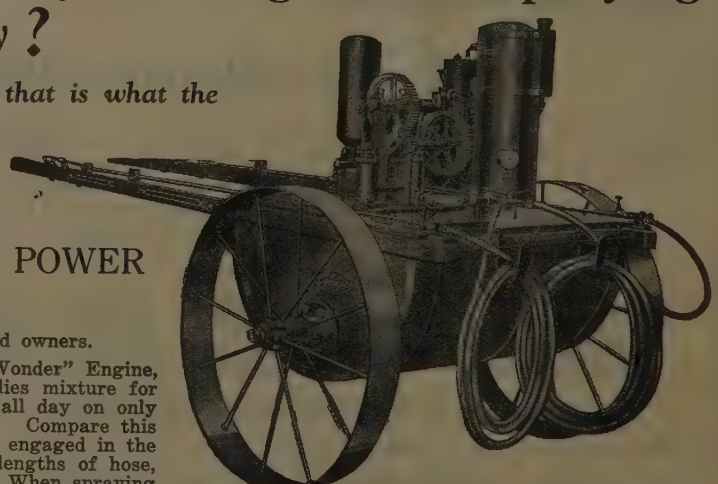

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Ask yourself these Questions:

What is the acreage under fruit and vines in Australia and in New Zealand?

What is the area under fruit in each of the Australian States, and the extent and value of the crops?

By how much has planting increased during the past two years?

What is the average production in value of our fruit crops?

What quantity of fruit is imported into the United Kingdom annually?

How much of this comes from Australia?

How much fruit does U.S.A. annually send to U.K.?

And how much from South Africa?

What are the Irrigation programmes of the several Australian States? Is more planting projected?

How much cold storage space is there in Victoria? In Australia? In New Zealand?

What is the best method of erecting Drying Racks?

What quantity of jam and canned fruit is produced in Australia? How much is exported?

What is the simplest method of keeping fruitgrowers' books?

How can I simplify my income tax returns?

What is the quantity of Oranges produced in Australia?

What quantity of Oranges does South Africa export to U.K.??

How many bushels of Apples do U.S.A. and Canada send to Great Britain??

What are the principal fruits imported into England?

What is the extent of the Viticultural Industry in Australia?

What is the acreage and quantity of berry fruits produced in Australia?

How can I keep up-to-date and abreast of the times?

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Poultry Notes.

(By Ian P. Hamilton.)

Seasonable Subjects.

SEE that a good supply of green food is available through the summer months.

* * *

When the hot weather sets in it is a good plan to provide fresh water twice daily.

* * *

The most effective way of getting rid of fowl-tick is the use of kerosene, which penetrates into their breathing pores, and they die of suffocation.

* * *

Keep the chicks growing. They require plenty of food, chopped green stuff, grit and clean water.

* * *

Ducks should be in full lay now. If they are not, it is usually because they are too fat. Plenty of green food must be supplied.

* * *

While eggs are cheap, it is a good time to preserve sufficient for household cooking during the winter. No thin shelled ones should be put down, and it is always better to use only infertile eggs.

* * *

Isolate all birds showing signs of catarrh in case roup should develop.

* * *

Clean nest boxes are essential.

* * *

Keep up the supply of scratching material. It provides the only means of exercise so necessary for birds kept on the intensive system.

A little Meggit's meal may with advantage be added to the hot morning mash.

* * *

Only strong, well - conditioned breeding birds can produce the eggs necessary to hatch strong, healthy chicks.

* * *

A good wet mash is three parts pollard, one bran, one lucerne chaff mixed up with soup made from fresh meat scraps.

* * *

One Victorian breeder sold 3,000 bags of poultry manure (that is, droppings mixed with the litter in the pens) to local market gardeners this year at 1/6 per bag.

It is a mistaken idea that the male bird is an encouragement to laying, and should always be in the flock, even though the eggs are not wanted for hatching.

SCALY LEG.

A good method of treating scaly leg is to besmear the legs with tar or creosote, taking care that none of it gets on the birds plumage or flesh. Another treatment is to apply a dressing consisting of equal parts of paraffin and raw linseed oil. Sulphur ointment is also good, and should be applied several times in conjunction with frequent soakings of the legs in warm water.

TO ERADICATE BROODINESS.

The best method of eradicating the tendency to excessive broodiness from any strain, is by a system of careful selective breeding. Where a maximum output of eggs is desired, only hens free from broodiness should be given a place in the breeding pens. It is also important that the male birds heading breeding pens be hatched from eggs laid by hens that are known to be exceptionally free from this fever.

INOCULATION FOR CHICKEN POX.

Mr. W. E. Rugg, Government Expert, has supplied an article dealing with the treatment of chicken pox by inoculation. It is claimed that this treatment proved successful in America, and Professor Woodruff has prepared a vaccine with which the experiment is being tried. Should it prove successful, small quantities of the vaccine will be made available to poultry men (at cost price, which will be small) by Professor Woodruff.

Bee-Keeping.

Improving the Industry.

A DEPUTATION representing Victorian apiarists, recently waited upon the Assistant Minister for Agriculture, and placed before him suggestions for the improvement of the bee-keeping industry.

The request for an assistant to be appointed to the Govt. Expert, Mr. F. R. Beuhne, was renewed. It is considered that such an assistant is required to act as foul-brood inspector.

Assistance was asked in the matter of establishing a colony of Italian bees on Groote Island, in the Gulf of Carpentaria, it being stated that this was the only place in Australia where there were no bees, and importation elsewhere was prohibited.

A further request asked that Mr. Beuhne's services be made available to apiarists for research work.

Expert assistance was desired in connection with the proposal to establish a depot at Ararat for the refining of honey. It was also urged that Mr. Beuhne should be sent to the Apiarists' Conferences in other States.

A system of registration of beekeepers would—it was hinted—enable bee diseases to be better controlled.

The control of honey from the pure

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food point of view was also stressed by the deputation, which stated that a beekeeper producing his honey under cheaper, though unsatisfactory, conditions, could sometimes undersell a more scrupulous competitor by as much as 10/- a tin. The last Apiarists' Conference recommended that a registration fee of 5/- for up to 20 hives, and an extra penny for each additional hive, should be imposed, and the revenue be devoted to improving the industry. The deputation asked for the appointment of six deputy inspectors to see that cleanliness was observed in the keeping of hives. Beekeepers, it was suggested, would be willing to act in an honorary capacity if paid out-of-pocket expenses. On leaving a district migratory beekeepers frequently left uncleansed appliances lying about, which were often a cause of infection to healthy bees.

The Assistant Minister, in reply, expressed accord with many of the requests, but there had been no chance last session to pass a bill dealing with those that required legislation. He would recommend the Ministry to give Mr. Beuhne more assistance. If bee-keepers were experimenting by establishing hives on Groote Island, and were prepared to do the work, he saw no reason why the Ministry should assist them. There were, he considered, strong grounds for the claim for research work. Though cream grading was a charge on the dairying industry it may not be necessary to make agricultural research a charge on the beekeeping industry. The establishment of depots was a matter that rested entirely with the bee-keepers themselves, and when it was done, the department could be notified. If an assistant were appointed, Mr. Beuhne could give more time to such depots and to outside work. There would be no difficulty in regard to the expert attending Interstate Conferences. Registration was a matter that would require an Act of Parliament. There was no reason why honey should not be brought under the pure foods act. The question of a standard would need some consideration. He would see what could be done in the matter of stricter supervision, but could not agree to the appointment of the deputy-inspectors immediately. All requests submitted would receive favourable consideration, and it might be possible to pass a small bill this session.

RESTORING SOIL FERTILITY.

Nature's method of restoring lost fertility of the soil is by covering the surface of the earth with either grass or timber. These, in their growth and development, feeble at first for lack of nutrition, gradually restore the lost humus to the soil, the trees furnishing leaves and decaying wood and the grass the yearly decaying growth for the same purpose.

This is, indeed, a slow process, but one which works continuously toward the restoration of fertility. From nature's method we draw an important lesson. Where the soil is so poor that neither grass nor trees will grow, nature will have some crude form of vegetable life to accomplish the same ends, although it may be years in the making. It is worth noting that all of nature's efforts in this direction are accomplished by living organisms and that she never works with a bare or barren surface. The requisite of many of our soils that have been depleted of their fertility is humus. The turning under of crops will aid largely in this. The planting of leguminous plants such as clover, lucerne, soy beans, etc., is simply hastening nature's method. Bear this point well in mind and plan to get more humus into the soil.

BERRY GROWERS, PLEASE NOTE.

A celebrated comedian once arranged with his greengrocer, named Berry, to pay quarterly; but Berry sent in his account long before the quarter was due. The comedian, in great warmth, called on the greengrocer, and thinking his credit had been doubled, said:—

"Here's a pretty Mul-berry; you have sent me in your bill-berry, before it is due-berry. Your father, the elder-berry, would not have been such a goose-berry: I do not wonder-berry that you should look black-berry, for I do not care a straw-berry, and I shall not pay you till Christmas-berry.

(After the greengrocer had recovered consciousness, it was discovered that he had an attack of Berri-berri.)

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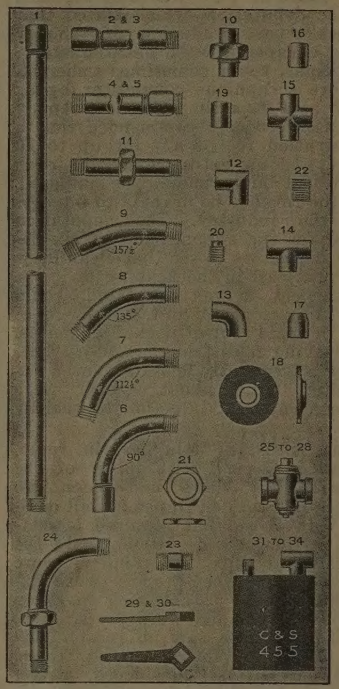

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75	6,074,284	5,353,568	13,131,319	14,106,422

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Dennys, Lascelles Ltd., 509 Collins Street,
Lister, G., Western Market.
Mills & Co., J. B., 9 Queen Street (representing Nothard, Lowe & Wills Ltd., London).
Millis, A., & Sons, Western Markets.
McClure, Valentine & Co. Pty. Ltd., 49 William St.
Mumford, J. G., 449 Flinders Lane.
Pang & Co. Ltd., H. L., Little Bourke St.
Silbert, Sharp & Davies, Western Markets.
Stott & Son, T., Western Markets.
Tim Young & Co., Western Market.
Vear, F. W., 49 William Street.
Wade & Co., H. M., 439 Flinders Lane.
Woolf, G., Western Market.

QUEENSLAND.

Brisbane.
Barr, A. S., Fruit Exchange.
Collard & Mackay, Fruit Exchange.
Cooksley & Co., Fruit Exchange.
Finlayson & Son, Fruit Exchange.
Geeves, H. V., Fruit Exchange.
International Fruit and Produce Co., Fruit Exchange.
Robsons Ltd., Fruit Exchange.
W. J. Whitten & Co., Fruit Exchange.

WESTERN AUSTRALIA.

Perth.
Wills & Co. Ltd., G., Exporters.

SOUTH AUSTRALIA.

Adelaide.
Wills & Co. Ltd., G., Exporters.

TASMANIA.

Hobart.
Jones & Co. Ltd., H., Fruit Exporters.
Peacock & Co., W. D., Fruit Exporters, and at London.

NEW ZEALAND.

Auckland.
Radley & Co. Ltd., Fruit Auctioneers.
Turner & Growers Ltd., City Markets.

Dunedin.
Co-operative Fruitgrowers' of Otago Ltd.
Paterson, Thos., & Co., Vogel Street.
Central Produce Mart, Moray Place.

ENGLAND.

London.
Da Costa, Gerald, Covent Garden.
Jacobs, E., & Sons, Covent Garden.
Margetson & Co. Ltd., Covent Garden.
Moore & Co. Ltd., F.W., 8 Arthur Street, London Bridge.
Monro, Geo., Ltd., Covent Garden.
Nothard, Lowe & Wills Ltd., Tooley Street.
Poupart, T. J., Covent Garden.
Ridley, Houlding & Co., Covent Garden.
Swann & Co., 3 Salter's Hall Court.

Hull.
White & Son Ltd.

Liverpool.
J. Adam, Son & Co.
Roger White & Co., 37 Victoria Street.

Manchester.
North of England Fruit Brokers Ltd.

British and Australasian Market Reports

Great Britain.

English Market Reports.

Messrs. T. J. Poupart Ltd. report sales by private treaty of Tasmanian Apples ex "Port Pirie" at London and Liverpool, under date July 16th, as follows:—Good Sturmers, 18/- case; finest quality Sturmers, 20/-, 21/-; cooking varieties, 17/-.

Mr. J. O. Sims, London, reports sales by auction of Tasmanian Apples on July 17th. Sturmers, 16/6, 19/-; Cleos., 15/6 to 20/-; N.Y.P., 16/-, 18/-; Scarletts, 16/6 to 18/-; West Australian Oranges realised up to 20/-, 24/- for best quality on the same date. W.A. Oranges, ex the "Ormuz' very wasty, 10/-, 16/-; better condition, 16/-, 21/-; good Oranges on the "Esperance Bay" realised 22/-, 25/-; inferior, 4/- 15/- on August 7th. It is recommended that the W.A. Orange pack be charged, woodwool must be eliminated, and the slats of cases must be at least ¼in. apart to allow better circulation. The New South Wales case is more satisfactory. N.S.W. Oranges on "Esperance Bay' brought 17/- to 22/-.

London (11/8/23).

The following are the prices ruling at Covent Garden Market, as published in the "Fruit, Flower, and Vegetable Trades' Journal," 11/8/23:

Apples, English, 2/- to 7/- per ½ sieve; Bananas, Fyffe, 10/- to 20/-; Hoya, 18/- to 27/-; Figs, special, 10/- to 15/- per doz. Grapes, English Alicante, 1/6 to 2/6 per lb.; Muscat, 2/- to 5/-; Lemons, Murcia, 300's, 20/- to 25/-; Nectarines, special, 12/- to 21/-; Oranges,, Valencia, 300's, 20/- to 30/-; South African, 20/- to 25/-; Peaches, special, 12/- to 18/- per doz.; medium, 3/- to 9/-; Pears, Williams', 56's, and 64's, 10/- to 12/-; Pines, 1/6 to 6/-; Plums, 8/- to 11/- ½ sieve.

New South Wales.

Sydney (25/9/23).

Apples.—Five Crowns, 4/- to 7/- per bushel case; Granny Smith (special country), 13/- to 15/-; ordinary, 5/- to 10/-; Tas. Jon., 5/- to 12/-; N.Y.P., 5/- to 11/-; S.P.M., 4/- to 12/-; R.B., 5/- to 11/-; Democrats, 9/- to 15/-; Croftons, 7/- to 14/-; F.C., 6/- to 10/-; S.T.P., 5/- to 8/- per case. Bananas—Choice, to 27/-; other grades, 18/- to 24/-; small, 13/- per case. Lemons—Choice, 7/- per bushel case; medium, 5/- to 6/-; small, 3/6 to 4/-; Oranges, choice, 9/-; medium, 6/- to 7/-; Valencias, choice, 12/- to 13/-; medium, 6/- to 9/-; Navels, extra choice, to 18/-; choice, 14/- to 16/-; medium, 9/- to 12/-. Mandarins — Emperors, extra choice, 16/- to 18/-; choice, 12/- to 14/-; medium, 5/- to 8/- Pears—Choice, 12/- to 14/-; others, 8/- to 9/-; cooking, 4/- to 7/-; Tas., W.N., 5/- to 7/6; W.C., 5/- to 7/6; Jos., 4- to 7/6; G.M., 4/- to 6/- per half bushel case; E.B., 6/- to 8/-; K.H., 6/- to 8/-; N.A.P., 4/- to 7/- per bushel case; cooking, B.A., 6/- to 8/-. Passion-fruit—Choice, 14/- per ½ case; medium, 6d. to 8/-; small, 2/6 to 4/-. Pines, Queens, 8/- to 10/- per case. Quotations for local citrus fruits exclude cases.

Victoria.

Melbourne (25/9/23).

The following are the wholesale prices ruling at the Western Market:—Apples—Choice eating, 9/- to 10/6; choice cooking, 4/6 to 7/6; Tasmanian, 6/- to 7/6. Bananas—Queensland, 20/- to 26/- double. Lemons—Victorian, 6/6 to 9/-. Mandarins—N.S.W., 9/- to 16/-. Oranges—Mildura and N.S.W., 10/- to 11/-; Navels, 11/- to 16/-. Passion-fruit—Victorian, 12/- to 24/-. Pineapples—Queens, 8/- to 9/- double. Mandarins rather scarce.

Melbourne (21/9/23).

The s.s. "Jervis Bay," which carried a consignment of 1,003 cases of V.C.C.A Oranges, met with a good demand, 96 and 112 counts realised 21/- to 23/-; 126 counts upwards, 23/- to 28/-; condition satisfactory, except Griffith wasty, prices 15/- to 20/-.

Prices declined slightly during the week ended September 21st, owing to fuller supplies coming forward, both locally and from other States, report the V.C.C.A. We anticipate the clearing up of the Navel crop during the next couple of weeks. We advise the forwarding in small lots of choice Valencias, as the quality of most of the consignments of plain Oranges is poor. Choice Mandarins are at a premium. Lemons are moving slowly.

Queensland.

Brisbane (22/9/23).

Apples, Vic. Jon., 2½ins., 12/- to 14/- per bushel case; 2½in., 11/- to 12/-; small, 7/- to 9/-; Statesman, 10/- to 12/-; 2¾ins., 9/- to 10/-; Scarlets, 8/- to 10/-; S.T.P. ,choice, 6/- to 9/-; others, 4/- to 6/-; F.C., choice, 10/- to 12/-; 2¾in., 9/- to 11/-; Pears, Vic., W.W., 2½ins., 19/- to 20/-; V.P., 13/- to 15/-; Passion - fruit, choice, 10/- to 14/- per case; others, 6/- to 8/6; Papaws, 2/- to 3/- per tray; Pines, smooth leaf, 2/6 to 9/6 per doz.; rough leaf, 1/6 to 5/-; Oranges, Valencia, prime, 12/- to 14/- per bushel case; medium, 12/-; Poorman, 9/- to 10/-; common Oranges, prime, 12/- to 14/6; Navel Oranges, prime, 18/- to 20/-; Mandarins, Sydney imported, choice, 14/- to 15/-; medium, 9/- to 12/-; Redland Bay, locals, prime, 18/- to 20/-; Glen Retreat, prime, 19/- to 22/-; Lemons, Gayndar, prime, 10/- to 12/-; Bracalba, prime, 12/- to 13/-; medium, 7/ -to 9/-; Byrnestown, 12/-; locals, 8/- to 10/-;

South Australia.

Adelaide (21/9/23).

Apples, eating, 11/- to 15/- per bushel case; cooking, 10/- to 12/-; Bananas, 30/- to 32/- per crate; Lemons, 5/- per case; Oranges, 8/-; Mandarins, 19/-; Navels, 15/-; Poorman, 3/-; Passion-fruit, 32/-; Pines, 12/- to 14/-.

Tasmania.

Hobart (22/9/23).

Apples—S.T.P., 4/- to 4/9; Democrats, spotty, 5/3 to 5/6; C.P.M., small, to 5/3; S.P.M., 4/3 to 5/6; other sorts, 1/6 to 3/6 per case.

West Australia.

Perth (20/9/23).

Apples, Yates, 2½ins., 12/- to 14/6 per bushel case; medium, 8/- to 10/-; small, to 5/-; Doherty, best, 9/- to 11/-; others, to 8/-; Granny Smiths, best, 10/- to 13/6; others, to 9/-; Romes, to 12/-; Nickajacks, 10/9; Cleos., best, 9/- to 11/-; Dunn's, best, 9/- to 10/-; others, to 7/-; Rokewoods, best, to 9/9; small, to 5/6; Delicious, to 12/-; Permain, to 9/3. Navels (dumps), best, 10/- to 12/-; others, to 8/-; flats, best, 7/6 to 10/-; others, to 5/6; Oranges, best Joffa and Valencias, to 6/9; others, to 4/-; Mandarins, best, 7/- to 10/3; others, to 4/6; Lemons, to 5/9; Strawberries, to 20/- doz. Passion-fruit, flats, to 27/-; ¼ cases, to 16/6.

New Zealand.

Up to the time of going to press New Zealand market reports were not to hand.

Tarrant Motors Pty. Ltd. has issued a very interesting booklet entitled, "Facts and Figures about Fords in Victoria." The letterpress is descriptive of the benefit of Ford to Australia, and the number of people who benefit by and through the Ford. Up to the point of delivery, apart from the subsidiary companies, 400 hands, with a wages sheet of £160,000 per annum are employed. There are no less than 630 Ford Service Stations in Victoria, in which over £2,000,000 is invested. Some 15,000 people in Victoria would suffer direct loss if Henry Ford suddenly ceased production. Henry Ford's production figures are of special interest. In 1903-4 1,706 Ford cars were manufactured. In 1922, 1,232,268 cars were built. To give some idea of the growing popularity of tractors with the farming population, it is noted that the Fordson Tractor output in its first year (1917) was 254. For the first 11 months of 1922, 62,842 were completed.

Cooksley & Co.

(W. P. COOKSLEY)

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